Better Homes and Gardens®

# WOOD®

THE #1 MAGAZINE FOR HOME WOODWORKERS

$3.95

JUNE 1989 ● ISSUE NO. 29
Display until June 13

**UPGRADE YOUR TABLESAW WITH A REPLACEMENT FENCE**

**LEARN TO MAKE YOUR BENCH PLANES WORK WONDERS**

**MEET DESIREE HAJNY: WILDLIFE CARVER EXTRAORDINAIRE**

**JOIN THE SEARCH FOR AMERICA'S BIGGEST TREES**

**TERRIFIC DESIGNS**
Low-voltage lighting
Kids' train whistle
Laminated bud vase
Raccoon carving
Nifty napkin holder
Parrot mobile
Tip-top tops

**MODULAR ENTERTAINMENT CENTER**
See Page 44

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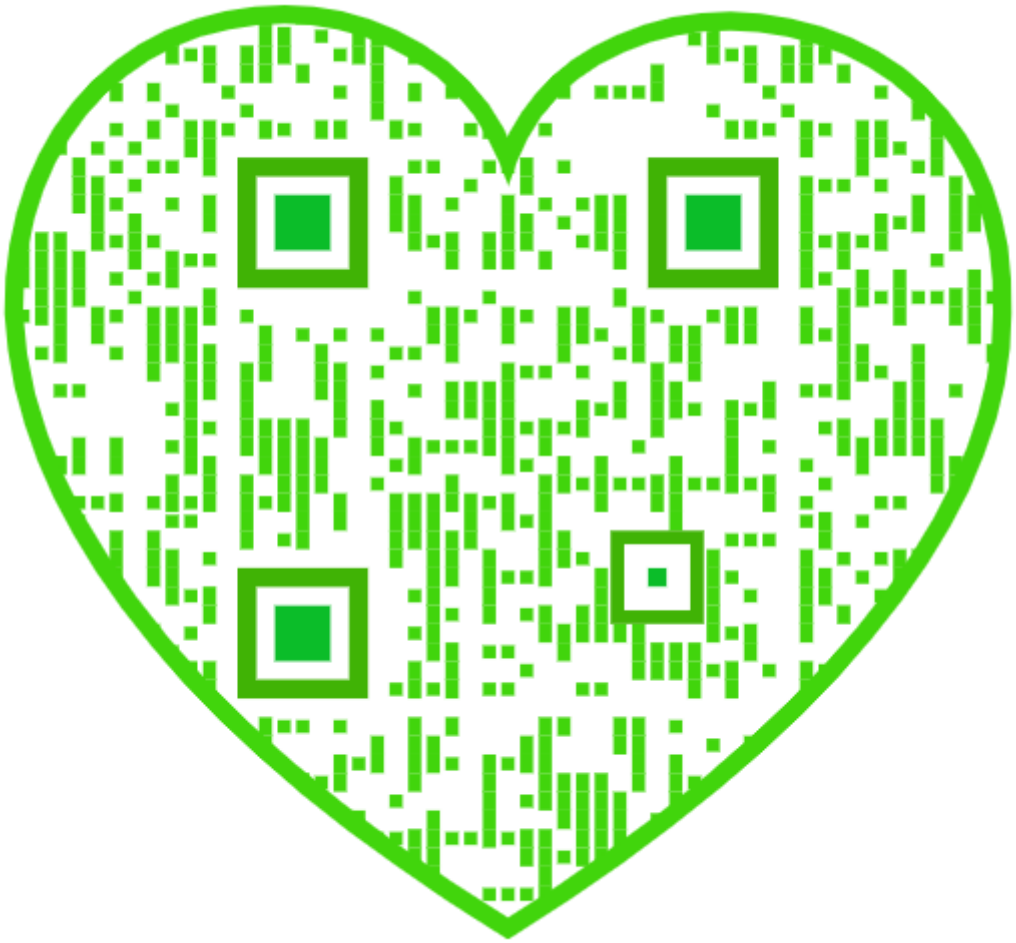


# Next to Fire and Termites, Moisture is Wood's Biggest Enemy.

That's right. Moisture can be as damaging to the wood around your home as fire and termites. And most premium paints can't stop it. You need Rust-Oleum Wood Saver™ paint. It's specially formulated to fight the damaging effects of moisture on wood.

## *PROOF POSITIVE*

Don't just take our word for it. Try pouring a little water onto your window sill or other painted flat wood surface. In a few minutes, you'll see it disappear *into* your wood. On the other hand, water poured on wood painted with Rust-Oleum Wood Saver paint beads and evaporates.

## *WHAT'S A SPONGE GOT TO DO WITH IT?*

Wood is naturally porous, like a sponge. So it needs a special coating to protect it from moisture. And don't be fooled by a painted surface that looks good, because damage to your wood could already be taking place. Now is the time to protect your wood from moisture with Rust-Oleum Wood Saver paint.

## *GOING...GOING...GONE*

Don't wait. Protect your wood with Rust-Oleum Wood Saver paint. After all, you can replace your paint now...or you could replace your wood later.

## *THE LOWDOWN ON PREMIUM PAINTS*

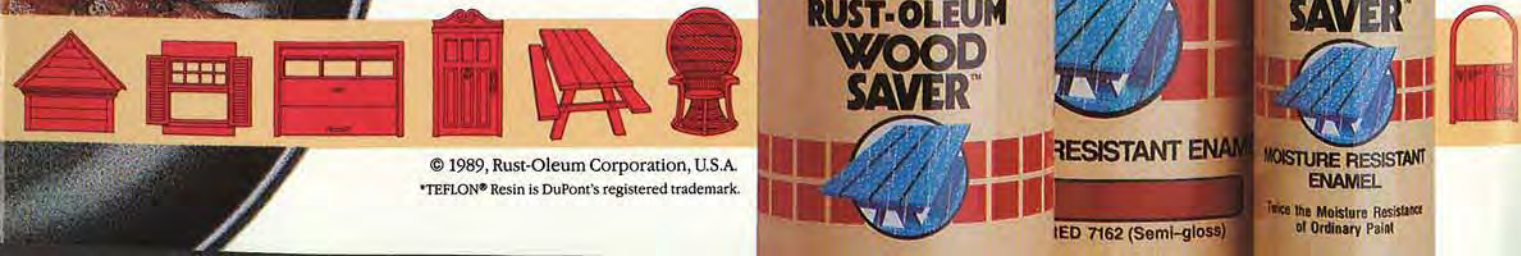
All paints aren't created equal. Most premium paints, for example, aren't formulated to prevent moisture from getting through to wood. So to protect wood where moisture is a problem, don't just pick any paint. Pick Rust-Oleum Wood Saver paint.

## *STROKE OF GENIUS*

The scientists at Rust-Oleum have made an incredible discovery. They found that TEFLON*, the same ingredient used on frying pans, makes a coat of Rust-Oleum Wood Saver a superior moisture-resistant barrier.

**Rust-Oleum Wood Saver.™**
**If it's going to get wet, get Rust-Oleum.™**

**RUST-OLEUM® CORPORATION**

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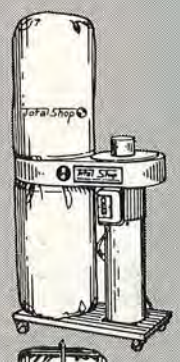
*TEFLON® Resin is DuPont's registered trademark.

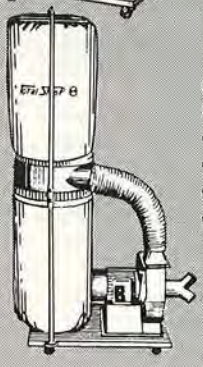
Total Shop®

# More New Items for '89



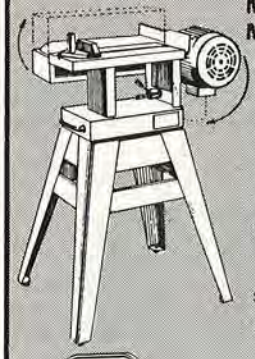
**Dust Collector**
- 1 hp, 110v
- 4" inlet
- Commercial quality
- Compact size

Reg. $348.00 **$209.00**
(Shp. & Hdlg. $30.00)



**Industrial Dust Collector**
- 2 hp, 110v
- Two 4" inlets
- 1185 CFM
- 125 lbs.

$499.00 Value **$339.00**
(ships freight collect)



**MS-648 Sanding Machine**
- Table tilts 2 ways for horizontal or vertical sanding
- ¾ hp
- 6" x 48" Band
- 17¾" Table

Reg. $369.00 **$269.00**
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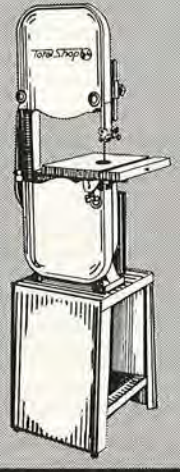

**TS 14-56 14" Bandsaw**
- Blade size up to ¾" wide
- Cast iron construction
- 180 lbs.
- ¾-hp

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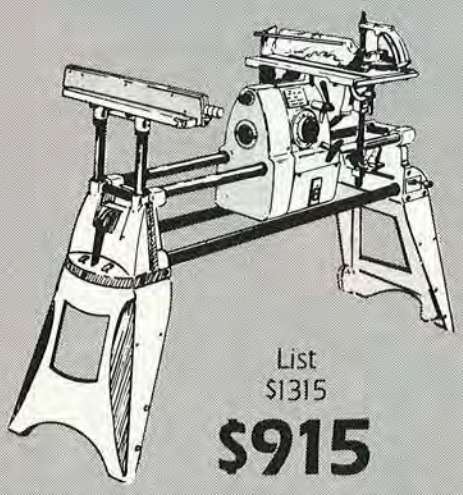

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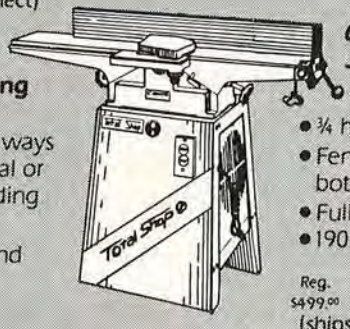

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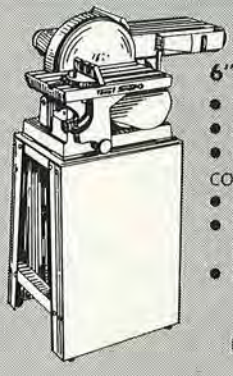

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- 6" x 48" belt
- Cast iron construction
- 152 lbs.
- 9" Sanding Disc Included
- Ball Bearings

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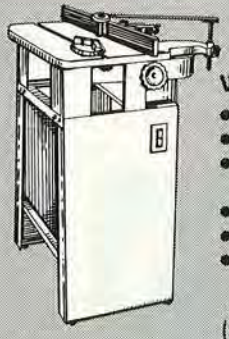

**Wood Shaper**
- ½" Spindle
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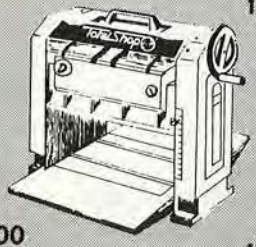

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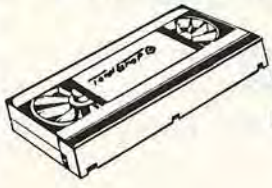

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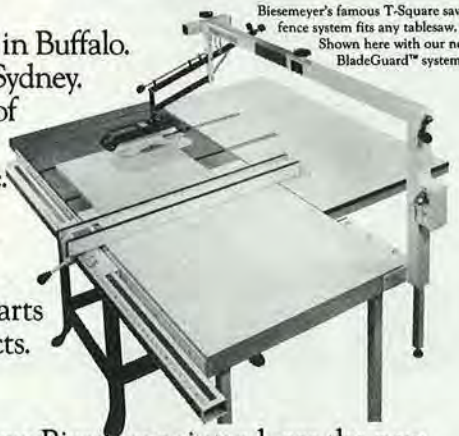

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**Better Homes and Gardens® WOOD®**

THE #1 MAGZINE FOR HOME WOODWORKERS

**June 1989 • Vol. 6, No. 3 • Issue No. 29**



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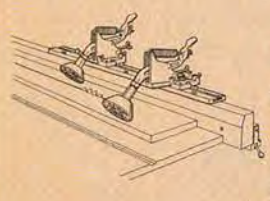

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# WOOD®

THE #1 MAGAZINE FOR HOME WOODWORKERS

*This issue's cover wood grain: knotty pine*

JUNE 1989 ISSUE NO. 29



WOOD PROFILE
**CHESTNUT: THE PIONEERS' DO-EVERYTHING WOOD** 37
Although a devastating blight humbled America's chestnut trees, some loyal woodworkers still rely on this sturdy tree for their finest cabinetry.

SHOP-TESTED TECHNIQUES
**BENCH-PLANE BASICS** 38
Old-world craftsmen mastered the bench plane out of necessity, but in today's world, many woodworkers overlook this useful tool.

**MODULAR ENTERTAINMENT CENTER** 44
What luck! An Oregon reader has agreed to share his handsome design for units to house stereo equipment, television, VCR, and lots more. You'll want to build this one.

**LOW-VOLTAGE LIGHTING: TALK OF THE TOWN AT SUNDOWN** 50
Sure, you can buy plastic outdoor lights if you want. But we think you'll agree that store-bought versions pale compared to these sturdy, first-class redwood fixtures.

**WAX—THE PERFECT PROTECTION FOR FURNITURE?** 54
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CRAFTSMAN CLOSE-UP
**DESIREE CAME OUT OF THE WEST** 56
Wildlife carver Desiree Hajny has piled up a stack of blue ribbons in just four years of carving competition. Find out how she brings her subjects to life.

CARVING PATTERN
**ROSCOE THE RACCOON** 60
Our featured carver offers an exclusive pattern with detailed notes and drawings, and a roughed-out blank.

DEVELOP YOUR SHOP SKILLS
**EDGE-JOINING: THE CAN'T-MISS WAY** 64
Here's a nifty way to glue up panels that have perfectly matched joints—even if your power tools won't cut an exact 90° angle.

TOOL BUYMANSHIP
**REPLACEMENT RIP FENCES** 65
Many woodworkers swear by the accuracy of these retrofit tablesaw fences. Our article provides you with a detailed look at what's available today and how each tool performs.

**STEAM LOCOMOTIVE WHISTLE** 70
All aboard for a jiffy project with an authentic toot from yesteryear. Can you hear the train a-comin'?

**LAMINATED BUD VASE** 72
Could a maple-and-walnut scrapwood project rival a rose for beauty? We think so! Build this vase in a few hours and see if you agree.

**CHAMPION TREES** 74
If you enjoy wood more than a board foot at a time, you might have the right stuff to become a Big Tree hunter.

**WE'RE TALKIN' HARDWOOD** 78
All of us can learn more about buying lumber. We surveyed hardwood dealers to find out what questions fellow woodworkers keep asking.

**SPICED-UP NAPKIN HOLDER** 80
Pack three mealtime essentials into one tidy package.

**PARROT MOBILE** 82
Catch a flight of fancy with this tropical bird.

**TIP-TOP TOPS** 84
The woodturner who tipped us off to these toys says he can't satisfy the demand for them.

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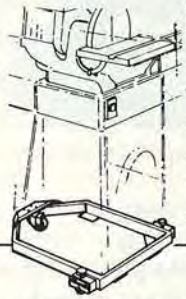

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## THE EDITOR'S ANGLE

# WHICH TOOL SHOULD YOU BUY? THAT DEPENDS!

**Three scrollsaw woodworkers, each with dramatically different tool needs.**

Back in the early 1900s when the Ford Motor Company began mass-producing cars, deciding which one to buy was easy. When you ordered a 1916 Model T, for example, for the outrageous price of $345, you knew it would have 4 cylinders and 20 horsepower. And you'd probably opt for the color black, the most popular hue available. Boy, how times have changed since then!

Purchasing decisions have gotten much more complex in the woodworking tool business lately, too. Why? Because American and foreign manufacturers alike realize how wonderfully diverse a group woodworkers are. They know that to maximize their sales, they have to offer products for every woodworking skill level and pocketbook.

That's why when we take a look at a particular category of tools in *WOOD®* magazine, we rarely tell you exactly which tool to purchase. Not because you wouldn't like that; we know you would. In fact, we get letters and calls all the time chiding us for allegedly shirking our editorial responsibilities and for being afraid of offending our advertisers.

We don't look at it that way. Here's what we do and why. After deciding which category of tools to review, we order in representative products from various manufacturers and assemble the machines. Then, working with one or more freelance tool consultants who have hands-on knowledge of the tools, we sit down and decide what information a prospective buyer needs to know before plunking down his or her money.

We also take a good, close look at the tools we get in, field-test them, and form *our opinion* of what features seem important from a consumer's standpoint. Then, we gather all this information and present it to you. After you read the article and examine the information in the chart, you should be in an excellent position to make a wise purchasing decision.

Believe me, if we thought that there was one "perfect" tool in each category, we'd tell you in black and white. Fact is, what's right for one woodworker may be totally inadequate for another.

Larry Clayton


BOSCH

Woodworking

**Shape Solid Surfacing Beautifully.**

5 bits in 16 sizes handle solid surface undermount bowl and decorative edge routing with micro-grain carbide-tipped efficiency. Line includes 15° bevel, rounding over, ogee, no drip and edge inlay bits.

**Trimming Laminates or Veneers?**

Bosch 1608 Laminate Trimming System includes 5.6 amp motor and complete set of accessories for virtually all shop, installation tasks. Includes standard, tilting and offset bases.

**Sander Features Exclusive Belt Tracking/Tensioning.**

Model 1273 and companion models have unique belt centering system. Rated super duty for high production, the unit also has pinch point guards for safety and lever action for easier belt changes.

# The Speed Varies So The Results Won't.

The new 3.25 H.P. Bosch electronic variable speed plunge router lets you make perfect plunge cuts time after time, no matter what the material or bit size. That's because it puts *you* in total control of speed, cutting depth, and the router itself, due to an excellent ergonomic design.

## The Advantages Of Variable Speed.

Select any speed, from 12,000 to 18,000 RPM, to match your material and bit size—and get far better cutting results.

1611EVS electronics give you two more big advantages, too. "Soft start" when you press the trigger—no jarring "torque twist" means better control. And by monitoring RPM and feeding power as needed, it keeps you from bogging down, even in the toughest cuts.

## Master Of Ergonomics.

From the first moment you get your hands on the variable speed model 1611EVS or the single speed model 1611, you'll know what separates it from other plunge routers. The handle grips feel like they were molded especially to fit your hands. The trigger switch, built into the right handle, and the plunge lock mechanism by your left thumb, let you reach these controls without taking your hands off the router.

Then press the trigger and take the plunge. Feel the housing glide down, and the ample power at your command as the bit slices effortlessly into your workpiece. Release the spring-loaded plunge lever and the housing locks firmly into position. And you can use the multiple-step depth-stop to make progressively deeper cuts with precision.

Both models accept the full array of ½", ⅜" or ¼" shank bits. And with their built-in, spring-loaded shaft lock, changing bits is fast and simple.

The Bosch models 1611EVS and 1611 are available in cooler running, higher horsepower 220V models, too. Ask about them and the complete line of fine Bosch power tools for woodworkers, at your-nearest Bosch power tool distributor. He's listed in the Yellow Pages under "Tools—Electric."

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# CARBIDE TIPPED ROUTER BITS

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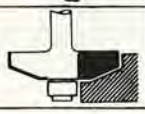
| | #03 | 1/2" R | 1/2" | 1-1/2" | 5/8" | 15.00 |
| | | ROUND OVER | | | | |
| | #04 | 1/4" R | 1/4" | 1" | 1/2" | $15.00 |
| | #05 | 3/8" R | 3/8" | 1-1/4" | 5/8" | 16.00 |
| | #06 | 1/2" R | 1/2" | 1-1/2" | 3/4" | 19.00 |
| | | ROMAN OGEE | | | | |
| | #07 | 5/32" R | 5/32" | 1-1/4" | 15/32" | $18.00 |
| | #08 | 1/4" R | 1/4" | 1-1/2" | 3/4" | 20.00 |
| | #11 | 3/8" RABBETING | Deep 3/8" | 1-1/4" | 1/2" | $14.00 |
| | #09 | 1/8" (KERF) SLOT CUTTER | | 1-1/4" | 1/8" | 14.00 |
| | #10 | 1/4" (KERF) SLOT CUTTER | | 1-1/4" | 1/4" | 14.00 |
| | #12 | 45° Chamfer | 45° Angle | 1-1/2" | 5/8" | $15.00 |
|  | #15 | Raised Panel | 20° Angle | 1-5/8" | 1/2" | $25.00 |
| | #35 | 1/4" V Groove 90° | | 1/4" | 1/4" | $ 8.00 |
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| | #16 | 3/8" Dovetail 9° | | 3/8" | 3/8" | $ 7.50 |
| | #80 | 1/2" Dovetail 8° (For Leigh Jigs) | | 1/2" | 13/16" | 12.00 |
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# TALKING BACK

**We welcome comments, criticisms, suggestions, and even an occasional compliment. The volume of mail we receive makes it impossible to answer every letter, but we promise to do our best. Send your correspondence to: Letters Editor, Better Homes and Gardens® *WOOD*® Magazine, Locust at 17th, Des Moines, IA 50336.**

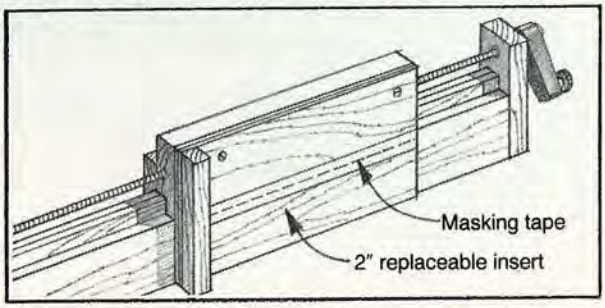
## WHY WE DON'T PUBLISH EVENT CALENDARS

We drove 100 miles to Indianapolis for a wood show that was supposed to open at 10 a.m.—according to some newspapers. When we got there, we found out it didn't open until 4 p.m. We just turned around and went home because we didn't feel like waiting all day. In the future, could you print show times?

***—Ed Wilkens, Pimemto, Indiana***

*We've often thought about publishing a calendar of events, but situations such as the one you describe tell us it's not a good idea. Although an events calendar would help some people, Ed, too many shows change locations, dates, and hours after we go on press—but before you receive your magazine. Two major show organizers frequently advertise in* WOOD *magazine. We suggest you call the toll-free numbers listed in their ad for up-to-date information. And, watch your local newspaper for announcements of upcoming woodworking shows in your area.*

## MICHIGANDER'S BETTER BOX-JOINT JIG




I am a new member of the *WOOD* magazine family and already I like your magazine better than the other four woodworking magazines I get.

I made the box-joint jig in issue 27 (February 1989) and it works great. However, I made two changes: I used two T nuts instead of plain hex nuts in the sliding block. Second, I made the ¼" plywood support 4" wide and added a 2" replaceable insert below it. I slid the insert under the stop and secured it with masking tape. Maybe this will help others.

***—Walter Prpich, Livonia, Mich.***

*Thanks for taking the time to write, Walter. Both of your suggestions improve the design and utility of this jig. Most hardware stores stock T nuts.*

*Continued on page 10*

# Build along with Norm Abram!

## Discover fine woodworking skills as you create beautiful projects for your home!

Rodale Press and *American Woodworker* are proud to offer you the exclusive hardcover edition of THE NEW YANKEE WORKSHOP—at a special subscriber price!

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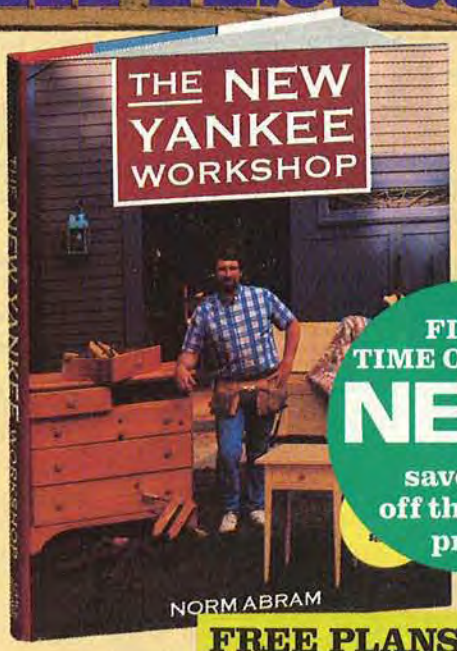
Here's your chance to give your woodworking skills a boost from master woodworker Norm Abram. Don't miss out. Send for your copy today!

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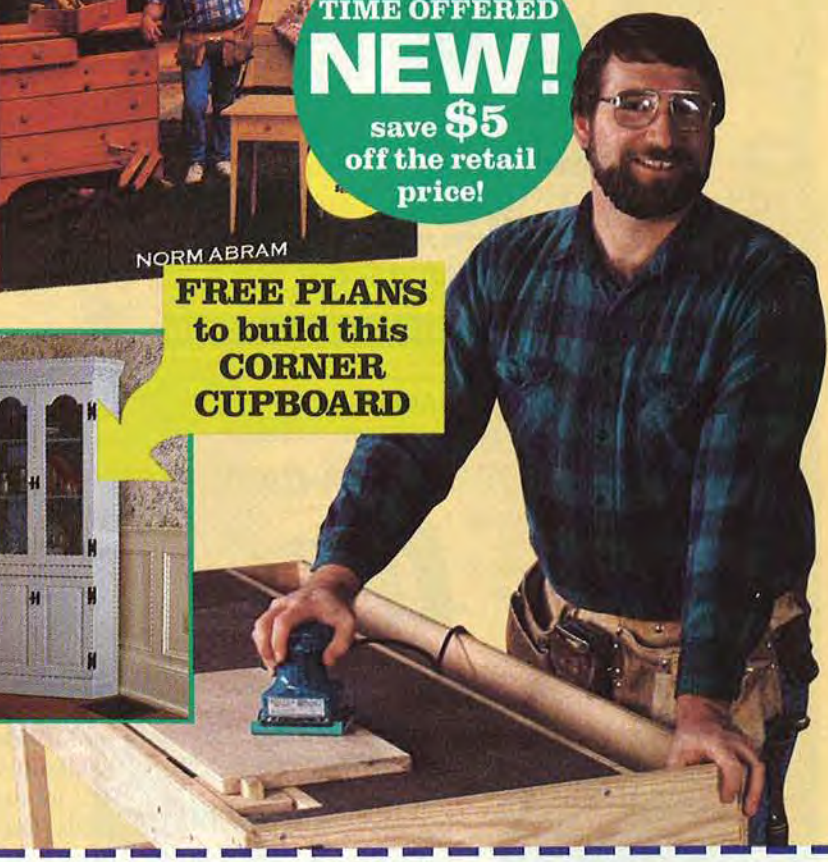

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# TALKING BACK

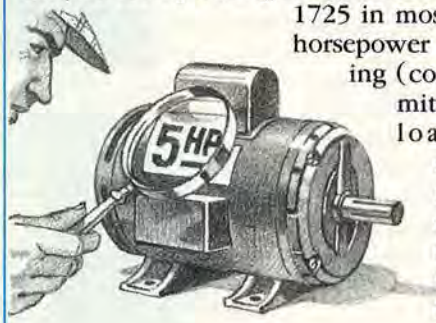
*Continued from page 8*

## MORE THOUGHTS ON RATING MOTORS

I have just finished reading the February 1989 issue of *WOOD* magazine, and I felt compelled to write you concerning the item "Peak HP" in the Tool Industry Insider on page 92. This article caught my attention because I have a pet peeve about the game of "peak" horsepower that tool companies play.

The article contains good information; however, I would like to take exception with a statement from Dean Ruffner of Jet Equipment and Tools. "The consumer needs to look for a UL (Underwriters Laboratories) listing on the motor. If it has a UL mark, the rating should be correct." This is somewhat misleading in that UL and CSA (Canadian Standards Association) test the unit to see that it meets certain criteria for fire hazards and electrical shock. Neither laboratory checks to see if it meets any kind of manufacturing standard pertaining to motor performance.

I would suggest to readers that a better alternative is to look at the data plate on the side of the motor. If the motor is built to National Electrical Manufacturers Association (NEMA) standards, the data plate will tell you the operating voltage, full-load rpm (3450 or 1725 in most cases), full-load horsepower rating, duty rating (continuous or intermittent) and the full-load current the motor draws. If the motor plate doesn't list all this, it probably isn't built to NEMA specs.




A 115-volt induction motor requires about 10 amps at full load to produce one continuous horsepower, and a 230-volt induction motor requires about 5 amps at full load to produce one continuous horsepower—without overheating. You aren't getting your money's worth if the motor doesn't meet or exceed these guidelines.

Manufacturers also mistreat ratings of series-wound AC motors or universal motors found on electric drills, routers, and belt sanders. It seems some companies calculate the horsepower when the motor "stalls." If a motor stalls, it is NOT producing horsepower. (Stall the engine in your car and try to drive it somewhere!) Reputable manufacturers will put the voltage rating, full-load rpm and full-load amperage draw of this type motor on the motor data plate.

Thank you for letting me sound off a little.

***—Donald F. Austin, electrical maintenance trainer, Arkansas Power and Light Co. Redfield, Ark.***

*In this price-is-king society, manufacturers sometimes sacrifice dependability and durability to market the cheapest tool. And unfortunately, horsepower fascinates too many of today's buyers.*

*Continued on page 12*

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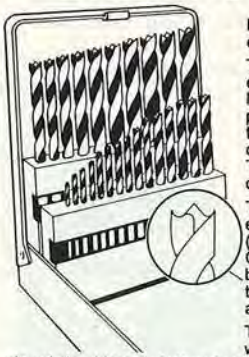

Brad Points are engineered especially for wood - soft wood or hard.

The center point (brad point) of the drill is pushed into the marked location for the hole. It locks into position and will not slide out. Then the motor is turned on. The hole is drilled exactly where it is wanted. This is the most important part of doweling, after proper measuring.

The two outside spurs cut clean entry holes. There is no tear out (splintering) - not even in Oak or Curly Maple - so that if the hole is to be later plugged to cover a screw, the periphery of the hole will be almost invisible.

These spurs provide smooth hole walls and almost flat bottoms. A dowel should touch bottom to glue properly. Metal working drills leave a tapered bottom.

It is best to own a complete 25-pc set and have every size from 1/8" to 1/2" in increments of 1/64ths (.0156") because commercial doweling is seldom sized exactly. Dowels that are too loose don't cut it; those that are too tight don't fit.

**WHY DOLLAR'S BRAD POINTS ARE BEST:** Our drills are milled from the solid; others are only roll forged. Our brad points and spurs are first milled then ground for accuracy. We use high carbon, alloy steel. Many others are made from plain carbon steel. Our drills are heat treated and hardened to Rockwell C48-52. They are tough, sharp and long lasting. Most companies that sell drills do not know what they are made of, or what the hardness is.

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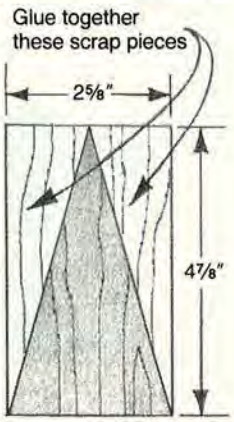
NO HASSLE, 30-DAY MONEY BACK GUARANTEE


# TALKING BACK

*Continued from page 10*

### THE FRUGAL LATHE OPERATOR

I rate your article on segmented bottoms for stave bowls in the June 1988 issue as excellent. One paragraph might have been added, however. When I finished cutting the 12 pieces, I found I could glue together the 24 wedged-shaped waste pieces to make a segmented bottom for another bowl.




It was more attractive to first glue together the long sides of the waste pieces. This produced 12 pieces to be assembled in the same way as you described. The only waste from the project was kerfs from the initial cutting on the bandsaw.

I like *WOOD* magazine!
***—Jerry L. Griffith, Hoisington, Ka.***

*Sounds like you found another bowl bottom in your waste bin, Jerry.*

### HOW THICK WAS THAT?

Tom Rose from Los Angeles bets that we meant .003 mm—not 3 mm— in a February 1989 "Talking Back" reference to Du Pont double-matte Mylar. Tom, you're correct. We apologize if this caused confusion.

### THE BASICS OF HIGH STICKING

Occasionally, readers ask about the double-faced tape we refer to in cutting out and building our projects. Actually, we rely on two varieties that we buy from a local hardware store.

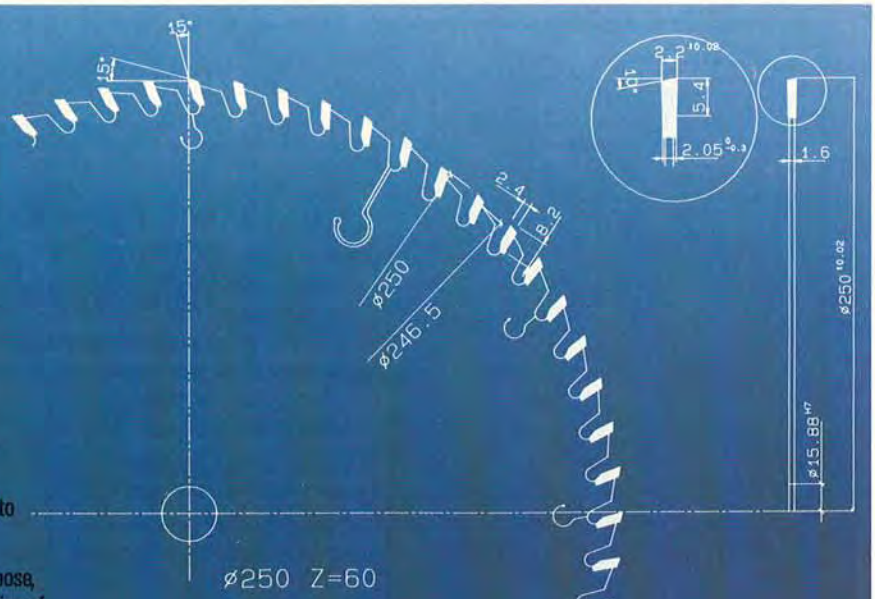
When we need superior sticking quality to fasten together pieces of wood, we call on 1½" Manco cloth professional carpet tape (item DFC-1). This works great to bandsaw identical parts, for example. A 12' roll sells for about $2.25. When we stick patterns to wood, a lightweight plastic double-faced tape has sufficient strength. We buy 1½"-wide Manco plastic carpet tape (S-42) in 42' rolls for about $2.85. Lacquer thinner releases the adhesive from both products.

### HONING COMPOUNDS: SOLID, NOT EXACTLY PASTY

Apparently we confused a few readers when we referred to honing compounds as "pastes" in the shop skills article on sharpening carving tools in our February 1989 issue. Some readers expected a product of a somewhat-liquid consistency when they ordered the emery and tripoli compounds from Woodcraft, the source listed in the article's Buying Guide.

To use the solid bars of compound, cut a hand-size portion of compound from the bar and rub it into the strop's leather surface. Recharge the strop with compound as necessary. Woodcraft now includes instructions with the compounds.

# Thin Kerf. Advanced Design.

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**Laser Technology.** A computer-controlled, 500-watt laser is used in the production of Freud cutting tools. The concentrated beam of light creates a perfectly round blade, produces shoulders identical in shape and size and precisely centers the arbor hole. In addition, expansion slots are strategically placed to allow for heat dissipation during brazing and blade body expansion during actual use.

**Thin kerf blade compared to standard kerf blade**

**Freud thin kerf blades Rip (left), Crosscut (right)**

### Freud Perfects the Thin Kerf Blade.

Using advanced technology, Freud's international team of European and North American engineers have perfected the thin kerf saw blade. They have eliminated misaligned teeth, poor blade body tensioning, carbide chipping and a variety of other problems common with some thin kerf blades.

The kerf on the Freud 10-inch crosscut blade, 28% thinner than the standard .126 inch kerf blade, reduces material loss when working with rare or expensive wood.

Freud's thin kerf blade also requires less energy to feed the material into the saw blade, eases the strain on your power tool and makes your work easier and safer.

Turn your under-powered saw into a real board cutting champion with Freud's thin kerf blade. Each thin tooth takes out less wood than the standard carbide blade, thus requiring less horsepower to produce equally good results. Also, the radial arm saw's aggressive self-feeding characteristics are virtually eliminated.

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| LU87M009 | 9" x 22 x 5/8" | .094 inch | $54.00 |
| LU87M010 | 10" x 24 x 5/8" | .094 inch | $56.90 |
| **Stock Number** | **Thin Kerf Crosscut** | **Kerf** | **Suggested Retail** |
| LU88M008 | 8" x 48 x 5/8" | .082 inch | $59.90 |
| LU88M009 | 9" x 54 x 5/8" | .090 inch | $63.90 |
| LU88M010 | 10" x 60 x 5/8" | .090 inch | $69.90 |

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- A chance to be selected as the Top Shop Tip winner for the issue. This issue's winner will receive a Skil portable circular saw as shown *below right.*

We try not to use shop tips that have run in other publications, so please send your tip to only one magazine. We cannot return shop tips. Mail your tips, address, and daytime phone number to:

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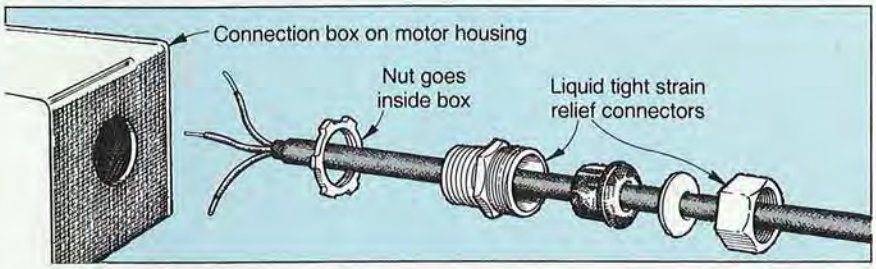
### THESE CONNECTORS KEEP SAWDUST OUT OF MOTORS

*Fine sawdust can turn up in surprising places—such as inside totally enclosed motors and capacitor boxes on table and radialsaws, drill presses, and the like. This invasion, which can shorten motor life and pose a fire hazard, may result from power cords being held with Romex connectors that permit the dust to infiltrate the connection box.*

**TIP:** Replace Romex connectors with flexible cord and power-cable connectors. Their liquid-tight connectors successfully block the dust invasion. You'll find them in all knockout sizes and a wide range of cable sizes. If your hardware store doesn't have them, an electrical-supply dealer should.

***—C. Clay Milner, Atlanta***

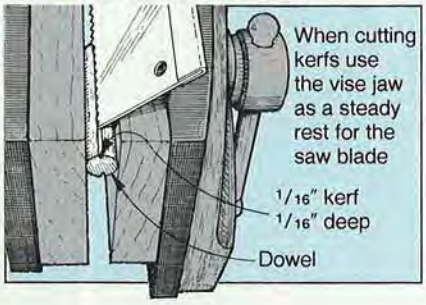



### LET TRAPPED AIR AND GLUE ESCAPE DOWEL HOLES

*Driving long dowels into snug holes may be impossible because of the air and glue trapped inside.*

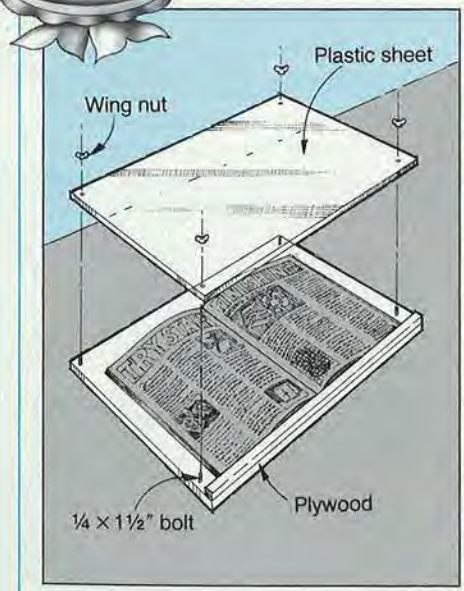
**TIP:** Place the dowel in your woodworking vise and with a thin-kerf blade, saw a 1/16"-deep groove to provide an air/glue escape route. Rest the saw against the vise jaw to control the cut as shown at *right.*

***—From the WOOD magazine shop***




TOP SHOP TIP

### PROTECTION PLAN EARNS READER A SKIL CIRCULAR SAW




*Even when you try to be careful, the woodworking plans in* WOOD *magazine can take a real beating from liquid spills in your shop. And, how many times have you employed an awkward weight to hold the magazine open to a certain place, only to tear a page when you reposition the magazine? Before you know it, you've accidentally soiled or torn your only copy of* WOOD *magazine.*

**TIP:** Preserve the entire magazine with a protective holder like the one shown at *left.* Start with a base of ½" plywood large enough to hold *WOOD* magazine (18×13"), glue a ½×½" lip along one of the longer edges, fit an 18×12½" sheet of ⅛" acrylic, and install 3/16" stove bolts with wing nuts to hold it all together. Bolts should protrude about ¾" through the base.

***—Julie Manuel, Oklahoma City***

For her winning tip Julie receives a Skil model 5825 6½" portable circular saw shown at *left.*

*Continued on page 16*

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***ACT NOW! Buy 1-Dozen Belts***

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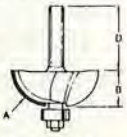


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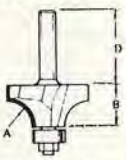
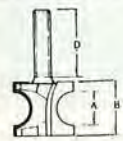
|---|---|---|
| S702Y | 1/16 | $12 |
| S704Y | 1/8 | $12 |
| S706Y | 3/16 | $12 |
| S708Y | 1/4 | $13 |
| S710Y | 5/16 | $14 |
| S712Y | 3/8 | $15 |
| S716Y | 1/2 | $16 |
| * S716Y-1/2 | 1/2 | $16 |
| * S724Y-1/2 | 3/4 | $28 |

**Roundover**




| PART NO. | A | PRICE |
|---|---|---|
| S502Y | 1/16R | $11 |
| S504Y | 1/8R | $11 |
| S506Y | 3/16R | $11 |
| S508Y | 1/4R | $12 |
| S510Y | 5/16R | $13 |
| S512Y | 3/8R | $15 |
| S516Y | 1/2R | $16 |
| * S516Y-1/2 | 1/2R | $16 |
| * S520Y-1/2 | 5/8R | $20 |
| * S524Y-1/2 | 3/4R | $20 |
| * S528Y-1/2 | 7/8R | $34 |
| * S532Y-1/2 | 1R | $34 |
| * S536Y-1/2 | 1-1/4R | $40 |

**Bull Nose**




| PART NO. | A | PRICE |
|---|---|---|
| SY9-1 | 1/4 | $14 |
| * SY9-1½ | 1/4 | $14 |
| SY9-3 | 3/8 | $15 |
| * SY9-3½ | 3/8 | $15 |
| SY9-4 | 1/2 | $15 |
| * SY9-4½ | 1/2 | $15 |
| SY9-5 | 5/8 | $16 |
| * SY9-5½ | 5/8 | $16 |
| SY9-6 | 3/4 | $16 |
| * SY9-6½ | 3/4 | $16 |
| * SY9-8½ | 1 | $18 |
| * SY9-9½ | 1-1/8 | $30 |
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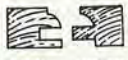

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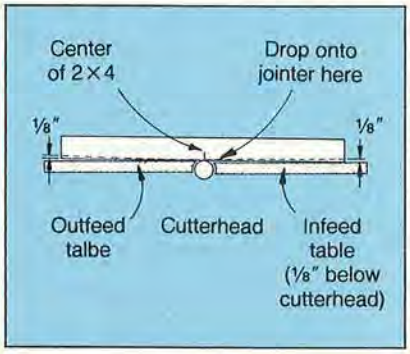
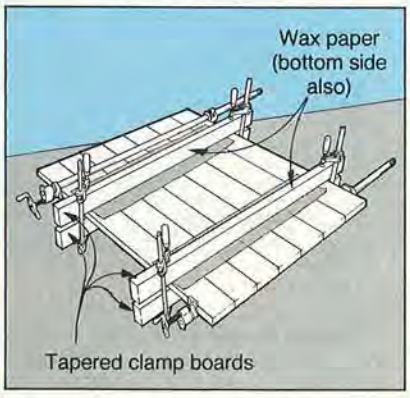
## TIPS FROM YOUR SHOP (AND OURS)

*Continued from page 14*

### TOOL UP FOR STRAIGHT EDGE GLUING

*Using 2×4s as flush clamp bars when gluing up boards edge-to-edge can easily result in misaligned boards toward the middle of the panel. The problem occurs because nontapered boards exert more pressure at the ends of the assembly than in the middle. The means to a solution: your jointer.*




**TIP:** Mark the center of the length of a 2×4 on its face side and set the infeed table of your jointer ⅛" below the cutterhead as shown in the illustration *above top*. Lower the workpiece over the cutter at the center mark and feed it off the table so it makes a tapered cut from the middle to one end. Keep downward pressure on the infeed side of the table throughout the cut. Turn the piece end for end to make an identical cut from the center to the opposite end. This will create a clamping bar that gently bows with a central crown ⅛" higher than its ends.

***—From the* WOOD *magazine shop***

*Continued on page 18*

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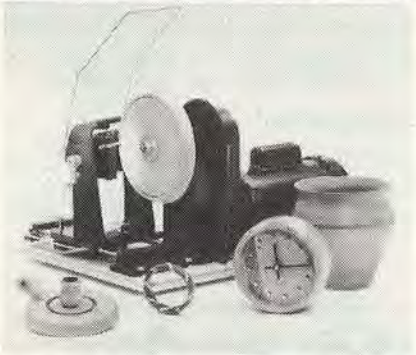

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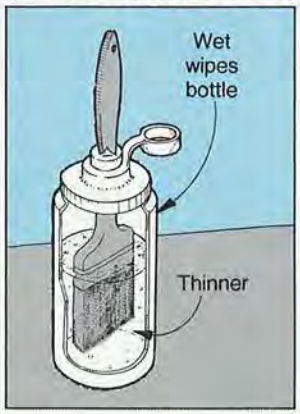
# TIPS FROM YOUR SHOP (AND OURS)

*Continued from page 16*

## GREAT WAY TO PUT BRUSHES "ON HOLD" BETWEEN COATS

*Between finishing coats, it would be nice if you didn't have to thoroughly clean the brush. You could place the brush in a jar filled with thinner, but that often damages the bristles.*




**TIP:** Recycle a container of wet wiping cloths such as Handiwipes for use as a temporary brush container. The slits in the cover form a snug opening and suspend the brush in a bath of solvent without bending the bristles. Some solvents will dissolve plastics, so check by placing a small amount of the solvent in the container ahead of time.

***—Daniel Borken, Bloomington, Minn.***

## PUT THAT CHUCK KEY WHERE YOU'LL ALWAYS FIND IT

*A drill press chuck key has a* nasty *way of disappearing when you want it. For example, it may be in the pocket of another pair of pants or out of sight in some corner of your shop. You can waste a lot of time looking for it.*

**TIP:** Use cloth-backed, double-sided carpet tape to attach a small magnet in a convenient location on the head of your drill press. The magnet will hold that elusive chuck and keep it from wandering.

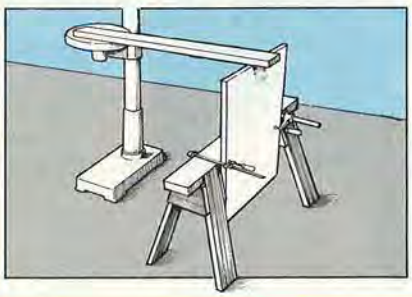
***—Lyle Kruger, Effingham, Ill.***

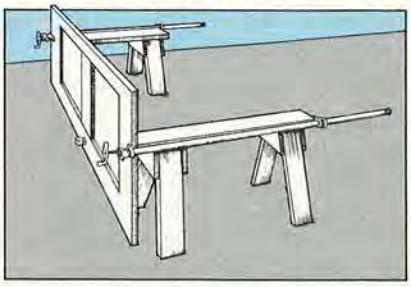
## HARNESS A SAWHORSE TO HOLD YOUR WORKPIECES

*Every once in a while, it's necessary to rip, crosscut, drill, or shape workpieces that are just too long to rest securely on the table of a stationary power tool. If someone is available, you could enlist them to hold up the far end of a long piece, but that may actually be dangerous in terms of binding or kickback and the like, depending on the machine and situation.*

**TIP:** Use some clamps, a piece of ¾" plywood, and a sawhorse to put together a reliable support for that stretched-out job. The configuration shown *below left* works nicely to support long pieces. The second setup shown *below right* proves handy for holding sheet stock as you plane an edge or for securing a door while you install hinges.

***—From the* WOOD *magazine shop***





*Continued on page 20*

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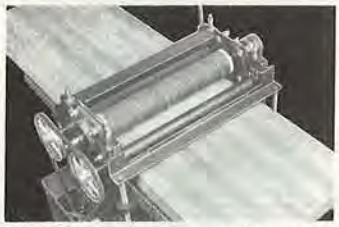

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*Editor, Workbench Magazine*

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*R.V. Delacourt, Cleveland, Ohio*

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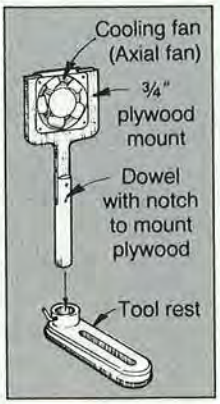
# TIPS FROM YOUR SHOP (AND OURS)

*Continued from page 18*

## A DUST BLASTER TO USE ON YOUR LATHE

*Many power tools, including the lathe, produce mountains of irritating, fine wood dust. A dust-collection system provides the ideal solution, but an expensive one.*




**TIP:** To keep dust out of your eyes and nose while turning wood, build this slingshot-style fan that you can install in the outboard tool rest of your lathe. Cut the ¾"-thick yoke to fit a 4–5" axial fan typically used for cooling a computer or audio equipment. You can purchase the fans from electronic-supply stores for about $15. Screw together the yoke and a notched dowel of the appropriate size to fit the tool rest. Wire the fan with standard 14-gauge power cord, including a switch near the fan.

***—Rus Hurt, Port Wing, Wis.***

## MORE TIPS FROM OUR WOODWORKING PROS

You'll find other useful shop tips scattered throughout this issue of *WOOD* magazine:

- Make your your plane glide effortlessly over workpieces using our tip on page 41.
- Ensure level shelves by dadoing a large panel, and then cutting the individual sides from the panel. See page 44.
- When building a cabinet, use a penny as a spacer for an even overhang on face frames. See the entertainment-center project on page 47.
- Need holes longer or larger than your largest drill bit? Try routing them on a router table fitted with a cove bit. We show you how on page 60.

# Here's another "buy 1 tool get our 212 page tool free" offer.

Just a few of the unique woodworking tools of the 3,500 others available from our most versatile tool, the 1989 Garrett Wade Catalog.

The 212 page Catalog, regularly $4.00, is Free with any order from this ad. Or if you would just like the Catalog, send us $4.00 with your name and address.

**A / New Multi-Angle Poly Gauge Speeds Set-Up**

Do you find it hard to set up a machine for an accurate cut? Now there is an easy way to do it all – square, mitre, or even up to 12 sides.

This hardened Aluminum gauge is accurate to 5 arc minutes (1/12°) on every angle, and will help set up almost any machine quicker. Laid flat, it can be used to set mitre fences or for layout work. Used vertically, the large slotted Brass knob holds the Gauge erect, freeing both hands for machine adjustment. Ideal for precise machine set-ups for 4, 5, 6, 8 or 12 sided joints. Instructions included.

25N01.01 Poly Gauge $24.75

**B / Deluxe Cabinet Scraper**

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19K06.05 Deluxe Cabinet Scraper $26.50

**C / Super-Hard, Pre-Sharpened Scrapers Keep Their Edge Longer**

Most scraper blades are sheared from steel hardened to Rc 38-42. This makes them fairly easy to file, stone and burnish. The hook, however, wears quickly in hard use.

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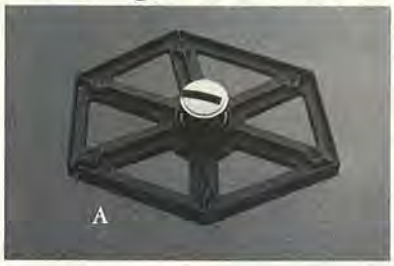
Comes in a set of 4: .015", .025", .035" and .042." thick.

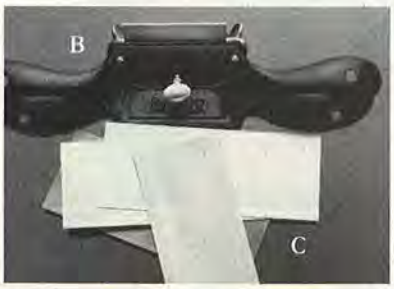
51K07.04 Set 4 Super-Hard $15.95
19K03.01 Triangular Burnisher $9.10

**D / Woodworker's Logbook Does It All**

This logbook not only includes a wealth of information on tools, hardware and supplies, but it provides a method of organizing for all information unique to your shop.

For example, it has an inventory record system, and an indexed project section for information specific to various pieces you build. Comes with ruled paper, graph paper and tracing paper.



The extensive tabular material gives standard furniture dimensions. It includes lumber and plywood standards, pre-drill sizes for screws, bit operating speeds, all of those hard-to-find reference tables that you frequently need.

All this comes in a 2½" thick, soil-proof cloth-covered 7 ring, D-ring binder. The design lets the book open flat, allowing easy reorganization or addition. An excellent shop tool for any woodworker.

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**E / The "Blind Nailer" Used To Be A Staple In Every Tool Box**

This unique tool functions like a positioning jig. Simply slip the Special Chisel in and tighten.

Then place the flat Sole on the wood. You will be able to operate it in a one-handed fashion, using no mallet, as the chisel, which has a "finger-nail" shaped cutting edge, is mushroom shaped to fit comfortably in your palm.

The chisel edge, controlled by the Blind Nailer, will lift a a perfect small chip. Hammer your nail in and then glue the chip back in place. Result: No nail head hole. You can work very quickly.

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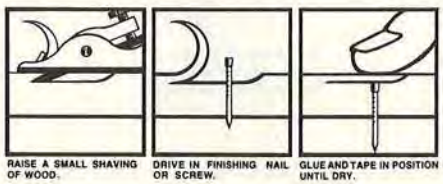


**F / Advanced Precision Honing Guide Sets Micro Bevels With Great Accuracy**

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The Bevel Setter, mounted on an Aluminum plate, rotates on a knurled Brass bolt. It has 5 angles machined on it (15°, 20°, 25°, 30° and 35°). It gives you access to 25 precise angles. Most importantly, you can return to exactly the same angle each time to hone. This improves accuracy and reduces sharpening time. Comes with complete instructions.

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## ASK WOOD

Print this article

**Whether your woodworker's license reads "Beginner," "Intermediate," or "Advanced," you're bound to have a few questions about your favorite hobby. We can help. We'll consult our staff and outside experts for answers. Send your questions to:**

**Ask *WOOD***
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***WOOD*® Magazine**
**Locust at 17th**
**Des Moines, IA 50336**

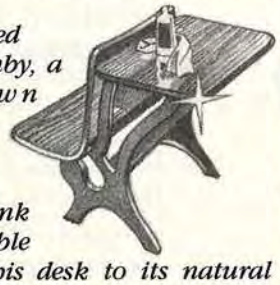
*Due to the volume of mail, we can't promise to answer all questions, but we'll try. We may edit letters selected for publication.*

### AN OLD SCHOOL DESK MAKES THE GRADE

A relative has asked me to refinish an old oak school bench and desk. The wood is well preserved and dry. It will require some sanding and possibly filling—especially on the bench.

My relative doesn't want a dark stain or shiny finish and certainly wants to preserve the carved initials on the desk. What might I use to preserve this antique?

***—M.L. Metz, Bella Vista, Ark.***



*We telephoned Homer Formby, a well-known furniture refinisher, about your desk. "I think you'll be able to restore this desk to its natural appearance with less work than you may expect," Homer said.*

*"First, I suggest that you go over the wood with 0000 steel wool soaked with my Furniture Refinisher to remove any remaining finish. Even if the desk appears to be bare of finish, there may be some finish left in the grain of the wood, so don't neglect this step. This process shouldn't remove color from the wood or raise the grain. You mentioned that the wood is dry—a common problem in antiques. Recently, we added conditioners to our Furniture Refinisher to replace moisture in wood while you refinish.*

*"I don't think you'll need to sand the wood unless there are some jagged, rough edges. Instead, after you've completely removed the old finish, lightly buff the wood with 0000 steel wool. I also don't think you'll need to use wood filler. The carved initials and other gouges put there by students are part of its charm, and it sounds like you want to preserve them.*

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**Seals Tub Tiles**
Gives you a strong, flexible seal that resists water and mildew.


*"If the desk is not going to be used for writing or drawing, I would finish it with Tung Oil Finish. If it is going to be used, I would apply Formby's Poly Finish for extra protection for the surface. You can hand-rub both of these finishes for a natural look, and both are available in high or low gloss."*

*For other answers to your finishing questions, call 800-FORMBYS from noon to 8 p.m. Mondays through Fridays and from 10 a.m. to 6 p.m. Saturdays and Sundays (all Eastern times).*

## WOODY VEGETABLES

Since there must be many woodworkers who have vegetable and flower gardens, does anybody have knowledge of a process for converting sawdust to a garden additive?

***—Norman Paterson, Morganton, N.C.***

*There are some people right up the road from our offices who know about this subject. According to our sources at Iowa State University Extension Service, you can add the sawdust of most woods to a compost pile or till directly into the garden. Fresh sawdust does, however, remove nitrogen from the soil. To balance things out, replenish the soil with a nitrogen-rich fertilizer. A word of caution: Do not add walnut sawdust, which has toxic properties, to the soil.*

## BLACK LACQUER—IT'S BASIC

I am an avid reader of your publication and I'm sure you can help me. I would like to finish a wood clock in jet-black lacquer.

***—Louie Bethke, Madison, Wis.***

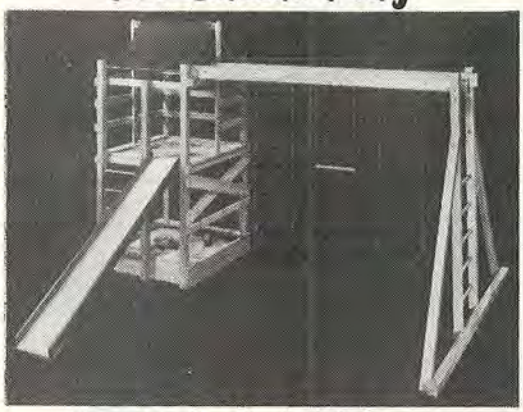
*We can help you, Louie. A quick call to John Moser, owner of Wood Finishing Supply Co., provided an answer. With open-grain woods, John suggests you first fill the pores with Behlen's Pore-O-Pac deep-black paste wood filler. Then, our New York friend recommends applying two coats of black Behlen's Undercoat, a sanding sealer. Between coats, John dry-sands with a #400 wet/dry paper. Finally, spray a minimum of two coats of black lacquer enamel.*

*John recommends gloss-black lacquer for most furniture and accessories, but if your project has a lot of carvings, try a satin finish for a uniform appearance. He rates poplar as a good, economical choice for black-lacquer projects.*

*If you'd like a complete catalog of John's product line, send $2.50 to: Wood Finishing Supply Co. Inc., 100 Throop St., Palmyra, NY 14522; 315/597-3743.*

*Continued on page 24*

## It's Childs Play



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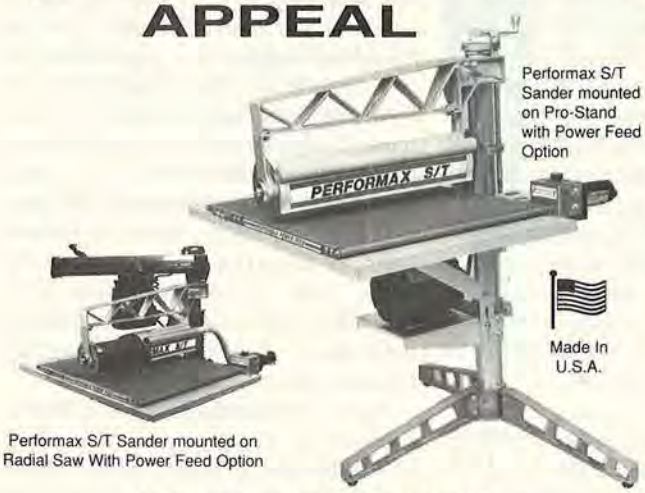
# THE SANDER WITH WIDE APPEAL

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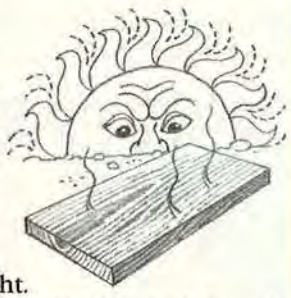
Call 1-800-334-4910 or Write to:

*Performax Products, Inc., 11975 Portland Ave. S., Suite 142, Burnsville, MN 55337*


# ASK WOOD

*Continued from page 23*

### BATTLING ULTRAVIOLET LIGHT



What finishing material can I apply to red juniper—known locally as red cedar or aromatic cedar—to retain the beautiful red hues? I want to avoid the brown tones that develop when cedar is exposed to air and light.

***—G.C Fonall, Plainfield, Ontario***

*We turned to our friend Ron Ashby at Liberion Supplies for an answer. "Ultraviolet (UV) light and air cause all woods to oxidize," Ron says. "You have to expect cedar and other woods to darken some. But you can do a few things to slow the process.*

*"Avoid oil finishes—oils can make the wood look even darker. First, apply a water-white lacquer sanding sealer. Follow with several coats of water-white gloss lacquer (avoid amber lacquers) to maintain clarity. If you want a semigloss finish, apply it only as the top coat. Don't forget to undercoat the inside or underside with sealer and two or more coats of lacquer. Finally, protect the project with a couple coats of cabinetmaker's wax.*

*"If you prefer varnish, stay with traditional high gloss products with UV inhibitors. Another method is to bleach out all the wood tone with a two-part bleach and then try to duplicate the cedar wood tone with an aniline dye. The dye creates a more-or-less permanent color."*

*You can contact Ron at Liberion Supplies, P.O. Box 86, Mendocino, CA 95460; 707/937-0375.*

### CLEANEST SHOP IN TULSA?

I am planning to build a workshop for my woodworking projects, and would like information about exhaust fans. The dimensions of the workshop will be about 18×24'. My plan is to have a fan that would keep fine dust from settling on everything and a dust-collection system to take out chips and most of the sawdust. It also is important that the exhaust system work effectively when I spray materials.

***—Donald G. Ray, Tulsa, Okla.***

*From the seriousness of your letter, Don, we can tell you place a premium on the air your breathe. We reviewed several dust collection systems in the April 1987 issue of* WOOD *magazine. The size of fan you need depends on the amount of spray and the size of your projects. For additional help, contact the Center for Safety in the Arts, 5 Beekman St., New York, NY 10038; 212/227-6220. If you do a lot of spraying, you should have a spray booth, or at the minimum, an explosionproof fan. Wear a respirator with an organic-vapor cartridge and a paint spray prefilter whenever you spray finishes.*

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## Woodworking Plans and Parts

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**#7453 Country Grocery List Package ..... $14.55/EA**

## NON-TOXIC FINISHES

### Hydrocote Clear Sanding Sealer

Sanding Sealer is used to seal the wood and provide a rapid build-up. It sands easily without gumming to provide a very smooth surface ready for a final finish of polyurethane or other clear finish.

**#8406 Hydrocote Sanding Sealer ..... $6.99/QT**
**#8407 Hydrocote Sanding Sealer ..... $19.99/GAL**

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Heavy solids content assures fast build-up. Gloss - 85% Sheen, Satin - 35% Sheen. Easy water clean-up.

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**#8417 Hydrocote Gloss Finish ..... $19.99/GAL**

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Polyurethane produces a surface with the highest resistance to marring, heat, water, and household chemicals. Can be brushed or wiped on over any Hydrocote face coat.

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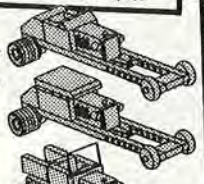
**#8422 Hydrocote Polyurethane Satin ..... $29.99/GAL**
**#8546 Hydrocote Polyurethane Gloss ..... $8.99/QT**
**#8547 Hydrocote Polyurethane Gloss ..... $29.99/GAL**

### Hydrocote Penetrating Stain

Dye based liquid stains for application on new wood. Can be coated in 30 minutes or less. Non-fading. Penetrates deeply.

**#8426 Hydrocote Golden Oak Penetrating Stain ..... $5.99/QT**
**#8430 Hydrocote Dark Walnut Penetrating Stain ..... $5.99/QT**
**#8434 Hydrocote Extra Dark Walnut Penetrating Stain ..... $5.99/QT**
**#8438 Hydrocote Fruitwood Penetrating Stain ..... $5.99/QT**
**#8442 Hydrocote Maple Penetrating Stain ..... $5.99/QT**

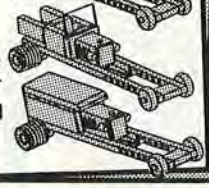
### Rubber Band Cars Plan



Probably the neatest looking rubber band cars ever designed! You get full sized blueprints for all 4 different cars including a '32 Ford and "T" bucket.

**#W227 Rubber Band Cars Plan ..... $3.50/EA**

### Rubber Band Car Hardware Kit



58 piece Hdw. Kit includes wheels, axles, drive bands, traction bands and misc. parts to build all four cars in plan #W227. You supply the remaining wood.

**#7469 Rubber Band Car Hardware Kit .. $11.99/EA**

### Musical Animals

Push the button and enjoy a musical tune! Full size plans available. Very easy to make from 3/4" pine! Hardware kit contains the music box, ribbon bow, and eyes. You supply the remaining wood. Plan and kit sold separately.

#### PLANS ONLY

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**#W327 Musical Dinosaur Plan ..... $2.00/EA**
**#W328 Musical Teddy Plan ..... $2.00/EA**
**#W330 Musical Clown Plan ..... $2.00/EA**

#### HARDWARE KIT ONLY

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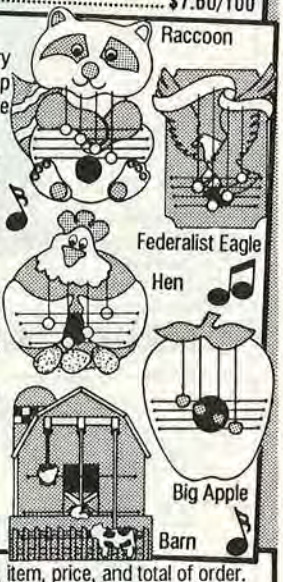


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**#W306 Federalist Eagle Plan ..... $3.50/EA**
**#W310 Hen Door Harp Plan ..... $3.50/EA**
**#W312 Big Apple Plan ..... $3.50/EA**
**#W316 Barn "Kicker" Plan ..... $3.50/EA**

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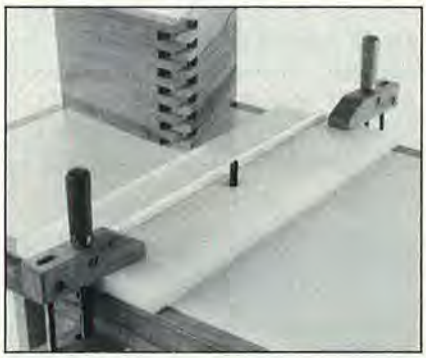
MLCS's variable speed control for routers and other AC/DC universal and DC-only induction motors adds a whole new dimension to fixed-speed power tools. I found it especially useful for slowing down large router bits with overall cutter diameters of 1½" or more. By slowing down those big cutters, you'll work safer and enjoy better cuts.

The unit performed well overall, although slower speeds were somewhat choppy. The control handles motors up to 15 amps and will not work with AC-only motors such as the ones found on stationary woodworking equipment.

**—Tested by Steve Oswalt, a Des Moines woodworker and frequent contributor to *WOOD*® magazine**

*MLCS variable speed control, $39.95 ppd. from MLCS Ltd., P.O. Box 4053, Rydal, PA 19046, or call 800-533-9298.*



## FAST FINGER JOINTS

What McDonald's is to hamburgers, this spacer fence is to finger joints—quick, easy, and steady quality at a reasonable price. The high-density polyethylene plastic should last a long time, and wood slides over it smoothly. I had to trim a hair off the width of the jig's tongue to get it to match the size of my ⅜" router bit, but once I did, my stock slid easily along the tongue for some of the quickest, hassle-free finger joints I have cut. These fences were designed by router expert Bob Rosendahl.

**—Tested by Steve Oswalt**

*Finger-joint spacer fence, in ¼", ⅜", and ½" patterns, $19.50 each plus postage from Garrett Wade, 161 Avenue of the Americas, New York, NY 10013, or phone 800-221-2942.*

*Continued on page 28*

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# PRODUCTS THAT PERFORM

*Continued from page 27*

## DAD'S PASSES THE TEST

You can't ask a paint remover to do a tougher job than our bowling-pin test: A couple of spray coatings of Dad's Easy Spray and a little steel wool lifted the plastic-coated epoxy right off our pin.

Dad's comes complete with a convenient pump-spray applicator. The solution quickly adheres to the surface and begins to gel, preventing running. This system, more cost-conscious than aerosols, beats drippy brush-on solvents by a mile. Dad's paint remover washes off with water. Please carefully follow instructions and package warnings.

**—Tested by Steve Oswalt**

*Dad's Easy Spray paint, stain, and varnish remover; available nationwide at hardware stores for $23.99 a gallon (suggested retail price).*

## RABBET PLANE KIT VISITS THE PAST

For woodworkers who enjoy building things the old-fashioned way, this bronze and rosewood rabbet plane kit should be as much fun to make as it will be to use. Based on a 19th-century wedged-rabbet pattern, the tool has a ½"-wide blade and 5¼"-long body.

Accurate assembly of the attractive plane may require a little more skill than suggested by the instructions. We had to plane at least 3/16" off the width of the blank before it would fit the casing, but the retailer says this problem has been corrected. Filing a slot in the sole also challenged us.

**—Tested by Steve Oswalt**

*The bronze shoulder plane kit, catalog No. 13H10; $39 ppd. from Woodcraft Supply Corp., 41 Atlantic Ave., Box 4000, Woburn, MA 01888. Call 800-225-1153.*

## THE WONDERS OF TUNGSTEN CARBIDE

These tungsten-carbide sanding sleeves cut quickly and clean easily. The 2"-long sleeves come in four diameters from ½" to 1½" and in two grits—a coarse silver grit and a medium gold grit. We found little difference between the grits.

Before use, it's a good idea to carefully examine the sleeves. We knocked off several high points, preventing some unwanted gouging. The sleeves quickly load up, but a stiff wire brush or propane torch works well for cleaning.

**—Tested by Steve Oswalt**

*We ordered ours from Woodcraft Supply Corp. (see product above for address and phone No.) The ½" coarse grit, No. 04M65, lists for $14.75 ppd.; the 1" coarse grit, No. 04N10, lists for $16.95 ppd.*

*Continued on page 30*

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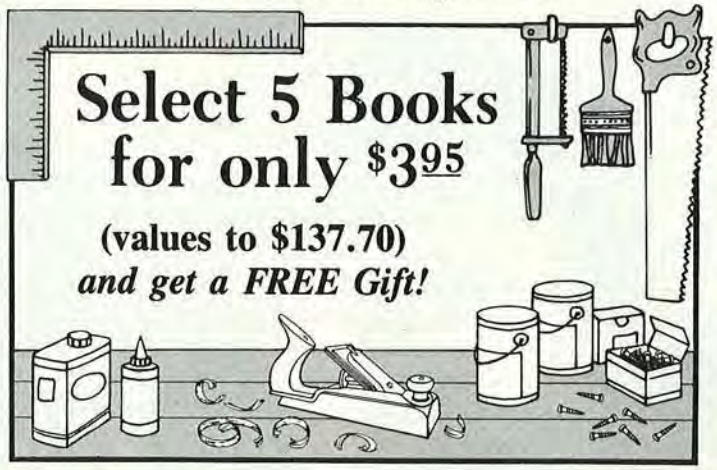

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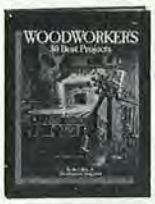

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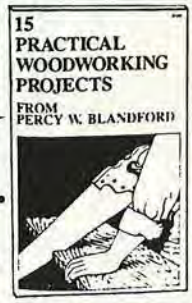


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—**Steve Oswalt**

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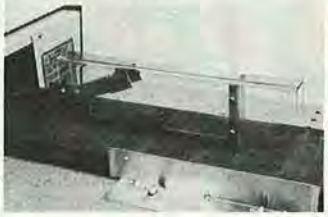

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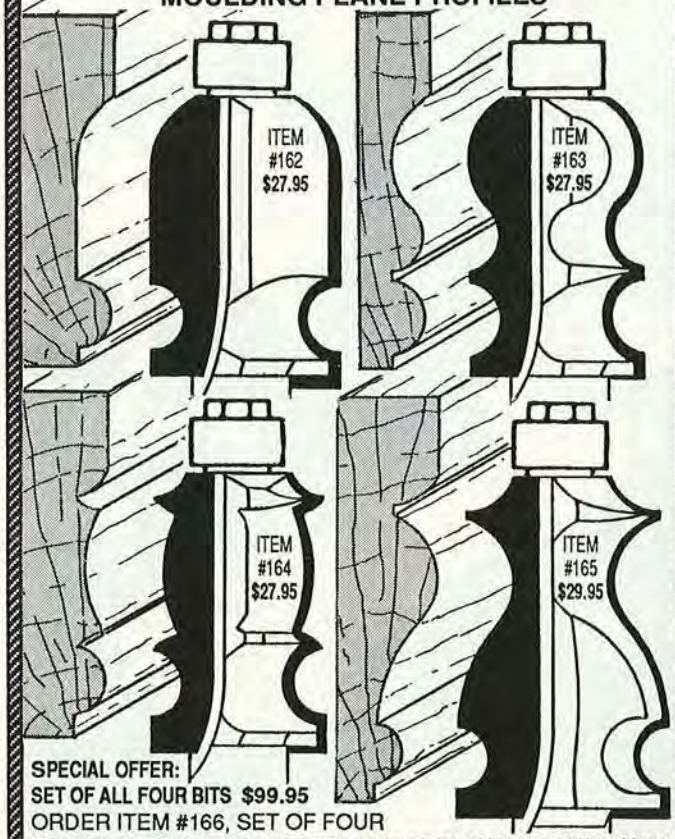


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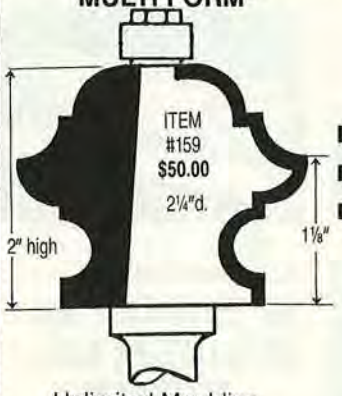


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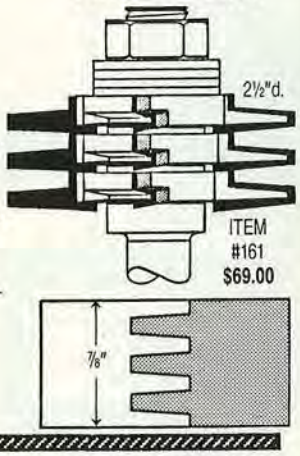


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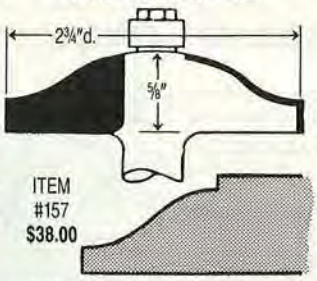


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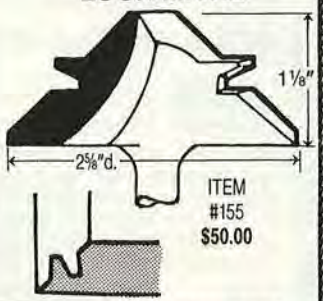


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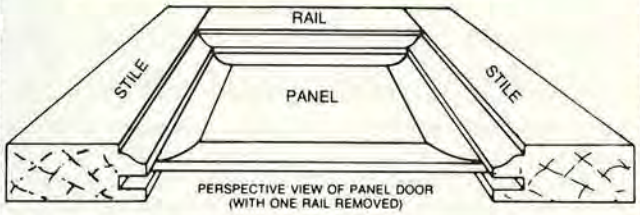


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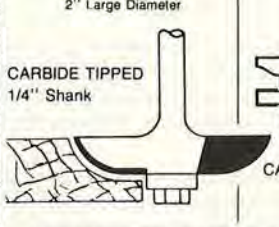

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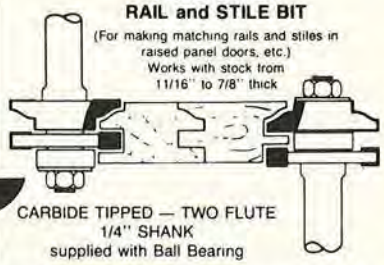

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A home and its contents built of *peroba* doesn't have to be monochromatic, though. The species is a family of rainbow hues. For variety, Brazilian woodworkers choose from peroba *rosa* (brownish red and best known), peroba *preta* (rose-red with black veins), peroba *muida* (red with dark patches), peroba *poca* (off-white), peroba *rajada* (pink and black), peroba *tremida* (yellow and gold), and even peroba *reversa* (bird's-eye figured).

Although the perobas form quite a clan, the family tree branches out still further to encompass some pretty strange but no less utilitarian cousins. There's *yaruru*, for instance. Color doesn't make this cousin from northern Brazil notable, shape does. Unlike peroba, which can grow 125′ tall and big enough around to yield lots of long, straight lumber, the deeply fluted trunk of yaruru looks like thick boards standing randomly on end with only their edges touching. In fact, to make a canoe paddle, natives simply saw off one of the board-like flutes from the trunk and shave the end for a handle.

Then, there's cousin *quebracho blanco*. From western Brazil, this tall and paunchy tree dwarfs even the majestic peroba. One tree can yield about 15,000 board feet of lumber—almost what you'd get from 15 oak trees with trunks 30″ in diameter and clear of branches for 40′. Now, that's a tree!

Photograph: Bob Calmer
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# MOLDING PLANES

*Clockwise, from lower left:* **Ovolo plane by Sandusky Tool Co., Sandusky, Ohio, about 1890, beech, $25; rabbet plane by J. Denison, Saybrook, Conn., 1850, beech, $45; tongue and groove plane by Wilson, of Manchester, England, 1880, beech, $40; half-round plane by I. Lindenberger, Providence, R.I., early 1800s, with lyrical wedge profile, chamfers, unusual 10" length, birch, $250.**

Just about every antique store has a few molding planes. And, at flea markets and auctions, you'll frequently find dozens of them selling for anywhere from $7 to $20. With so many available, can any of them be really collectible? You bet!

## CULL THE COMPLEX FROM THE COMMONPLACE

These forerunners to the router and shaper typically have only three parts: a body, a metal blade, and a wooden wedge that secures the blade. There, all similarity ends.

Basically, molding planes fall into two categories: simple profiles and complex profiles. Simple ones generally have bodies less than 2" thick. With one or two blades, they cut uncomplicated profiles, such as rabbets and quarter-rounds, in narrow wooden trim. Complex molding planes have thicker and longer bodies to accommodate irregularly shaped cutters for making more intricate moldings.

Having one plane for one purpose meant lots of planes. That's why, prior to Stanley's mass-marketing of the metal combination plane in the late 1800s, craftsmen had large tool chests.

## PLANES MADE BY A THOUSAND NAMES

Early American planemakers from England and Europe brought plane designs with them—planes with thick, heavily chamfered bodies up to 11" long. But, by around 1820, a distinctive American molding plane style began to develop (some say influenced by the design simplicity of the Shakers).

## PLENTIFUL PROFILES FROM THE PAST

Usually made of birch and beech, the planes featured narrower chamfering around the handhold (or none at all) and, to better fit the woodworker's toolbox, a length rarely exceeding 9½".

Notable exceptions were planes made in southeastern Massachusetts and Rhode Island. These have a slightly thinner and longer body with a lyrical-shaped wedge (see the half-round Lindenberger plane at *left*).

In the 150 years before the demise of the wooden molding plane, America claimed more than 31,000 planemakers who imprinted their mark on tools they sold. Some one-man shops faltered after limited production; larger companies such as Ohio Tool, Chapin Co., and Auburn Tool Co., made thousands of planes.

Today, simple molding planes for cutting rabbetts, rounds, half- and quarter-rounds, and other uncomplicated shapes, remain fairly common. Their abundance results in a reasonable price, too. Only rare examples, or matched sets, command prices above $20. Complex-profile planes, on the other hand, with their greater thickness and overall length, bring higher prices ($100 and up). Inlays of ebony or rosewood that provide a hard-wearing surface add value.

A maker's mark and an owner identification mark increase a plane's value as a collectibile. The maker's mark on a molding plane usually appears as a stamp in the upper front of its body. You'll find the owner's mark or initials there, too, or on the side of the body. Sometimes, you'll see fractional numbers stamped on the plane's heel. These indicate the minimum size stock to make the cut, not the blade width.

Fight the temptation to "restore" a molding plane. Just clean it and preserve it with wax.

Written with Philip Whitby
Photograph: Hopkins Assoc.

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# CHESTNUT

## The pioneers' do-everything wood

Chestnut has a long association with appetites. From the staple made of ground nuts called *polenta* that fed Caesar's legions, to chestnuts roasting by a yuletide fire, the tree's fame has spread by story and song.

Introduced to northern Europe and Great Britain by the invading Romans, the European variety of the chestnut tree has been cultivated not only for its nuts but for its durable, decay-resistant wood. In the United States, the native American chestnut once dominated the eastern hardwood forests. Growing to a girth greater than most oaks, the chestnut provided the country's pioneers with wood for every imaginable use.

Then, in the early part of this century, a severe blight swept the chestnut, reducing it to a nearly extinct species. Today, the available chestnut lumber and veneer comes from blight victims or from European trees.

American chestnut

Wormy chestnut

### Wood identification

Sighting full-grown chestnut trees in Europe is commonplace. *Castanea sativa*, the European species, remains hearty. In the U.S., the experience could be historic.

However, there's a ray of hope for the American chestnut (*Castanea dentata*). Researchers at the American Chestnut Foundation have found a thriving stand of chestnut trees at an undisclosed site. And, according to a spokesman for the National Arboretum, foresters have discovered a new, harmless strain of the original chestnut blight fungus.

When it reproduced unhampered, American chestnut grew best on the lighter soils in a range from southern Maine to North Carolina, Tennessee and west to Indiana and Michigan. At maturity, these burly trees stood 60–80′ tall and measured 5–6′ around the trunk. Deeply furrowed bark formed broad, flat ridges spiraling up the tree.

Early July brought blooms among chestnut's long, thin, toothed leaves, followed by small, prickly burrs. By the end of August, the hard-shelled burrs yielded nuts.

Chestnut has a tiny band of light-colored sapwood. The biscuit-colored heartwood, slightly lighter in weight than maple, resists decay. In color and grain, chestnut strongly resembles oak. Pinworm infestation of the heartwood results in highly-valued "wormy" chestnut with tiny holes.

### Working properties

Due to its coarseness, chestnut does not turn as well as oak. However, it works easily with other hand and power tools. Lumber from downed wood tends to be brittle, so, use fasteners *and* glue.

You can sand chestnut glass-smooth without difficulty, and the wood responds well to any finish. And, in service, you'll find chestnut one of the most stable woods.

### Uses in woodworking

From colonial times, chestnut has been made into anything destined to last: shingles, siding, fence rails and posts, railroad ties, and furniture. It was prized casket stock.

Today, woodworkers select chestnut veneer for custom cabinets, and solid stock for clocks, chests, and furniture. And, antique furniture restorers demand chestnut for replacement parts.

### Cost and availability

You can purchase solid (from American and European trees) and wormy chestnut (from American trees) as lumber in up to 3″ thickness. However, you'll find it primarily on the East Coast, and in limited quantities. At about $10 per board foot, you'll also pay dearly. More readily available than chestnut lumber, veneer sells for about $4 per square foot.

Illustration: Steve Schindler
Photographs: Jim Kascoutas

# BENCH-PLANE

With jointers, portable power planers, routers, and the like so readily available today, you might wonder why anyone would need a bench plane in this power-everything woodworking world of ours. Fact is, though, that the trusty bench plane will perform many jobs including cabinet cleanup, window and door trimming, and surface planing better than a power tool. And it will do these tasks—and more—without using a watt of electricity or breaking down.

As *WOOD* magazine's project builder Jim Boelling puts it: "Even if you rely on power tools, you should learn how to crawl with a bench plane before you walk with a power jointer. A plane gives you an understanding of the surfacing process that a jointer can't."

In this article, we're going to restrict our comments to the smoothing plane, which can accomplish most all your planing chores. You can apply the same techniques to using the other types of bench planes—jack, fore, and jointer—all similar to the smoothing plane, just longer and wider.

**"Just as musical instruments have a sound, the plane is the violin in the orchestra of woodworking. As you work with a plane, you'll hear the sound of the wood rather than the whining of a motor. When you hear the wood, you become closer to the workpiece—you become a part of the project."**

**—Roy Underhill, host of the popular PBS series *The Woodwright's Shop*, and frequent contributor to *WOOD*® magazine**

## A TOOL AS OLD AS WOODWORKING ITSELF

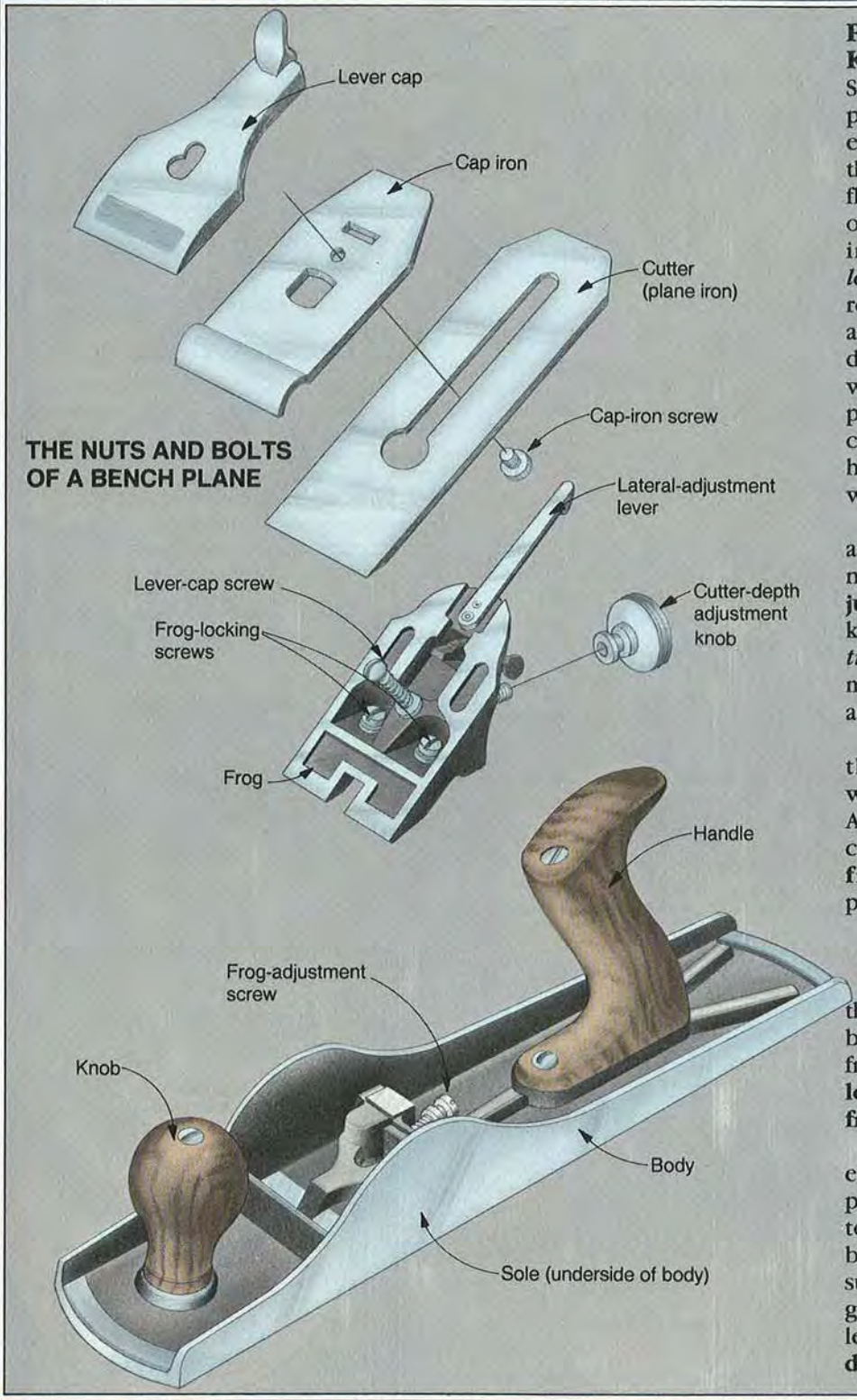
**In modern times, the bench plane has evolved from versions made completely of wood except for the cutter (*left*), to planes made of metal with wood bodies, to models made almost completely of metal except for wooden or plastic handles. Today, the Primus plane from Germany combines old and new technology in a wooden body with metal and plastic parts.**

Nobody knows when the first plane was made, but historians do know that ancient Romans used wooden planes surrounded by metal sheaths. By medieval times, every carpenter and cabinetmaker had wooden planes in his tool kit. During the 17th century, English immigrants brought planes to America and by 1790 many individuals found steady employment in plane-making. As the Industrial Age swung into full gear around 1900, metal planes became the tool of choice for most craftsmen. Why? Because they proved more durable and adjustable than their wooden counterparts. By 1925, the wooden plane-making business in the U.S. had ceased to exist. Today, although metal planes dominate the market, some European companies still manufacture high-quality wood planes as shown *above*.

**Few sensations compare to the feel of long, paper-thin shavings flowing from a bench plane.**

Print this article

# BASICS EVERYTHING YOU NEED TO KNOW ABOUT USING THIS CLASSIC TOOL




**THE NUTS AND BOLTS OF A BENCH PLANE**

## PLANE ADVICE: KNOW THESE PARTS

Stripped to its barest bones, a plane consists of two essential elements: A sharply honed **cutter** that projects through a perfectly flat **sole.** So what's the purpose of all those other parts depicted in our anatomy illustration at *left?* Adjusting them changes the relationship between the cutter and sole—and that relationship determines whether your plane will glide over the work and peel out smooth shavings or come to a screeching, splintering halt. Here's a quick rundown of what each of these parts does:

To lower or raise the cutter for a deeper or shallower cut, you need to turn a **cutter-depth adjustment knob.** Just above this knob, a **lateral-adjustment lever** *tilts* the cutter, something you might want to do in squaring up an edge.

Screwed tightly to the top of the cutter, a **cap iron** curls wood shavings out of the plane. A **lever cap** locks the cutter and cap iron in place on top of a **frog**. This peculiarly named piece moves the cutter back and forth to adjust the size of the opening in the sole. To accommodate deeper cuts and thicker shavings, you'll need a bigger opening. To move the frog, first loosen the two **frog-locking screws**. Then, turn the **frog-adjustment screw.**

The plane's **body** carries the entire assembly along the workpiece in a motion that allows it to shave off high areas while bridging low spots in the wood surface. You guide the body by gripping the **knob** with your lead hand and pushing the **handle** with your dominant hand.

*Continued*

# BENCH-PLANE BASICS

## GETTING DOWN TO THE BUSINESS OF PLANING

Before diving into any project, always put a sharp edge on the cutter for smooth, effortless planing. If your cutter is dull or nicked, start by using a fine stone to grind the cutting edge square to its sides. Then, grind a straight, sharp edge on the cutter as shown at *right*. Periodically use a square to check the edge. For more information on hollow-grind sharpening, refer to pages 67–73 in the June 1986 issue of *WOOD* magazine. We've improved plans for a sharpening jig that appeared in that article and would be glad to send you a free copy (see the offer at *right*).

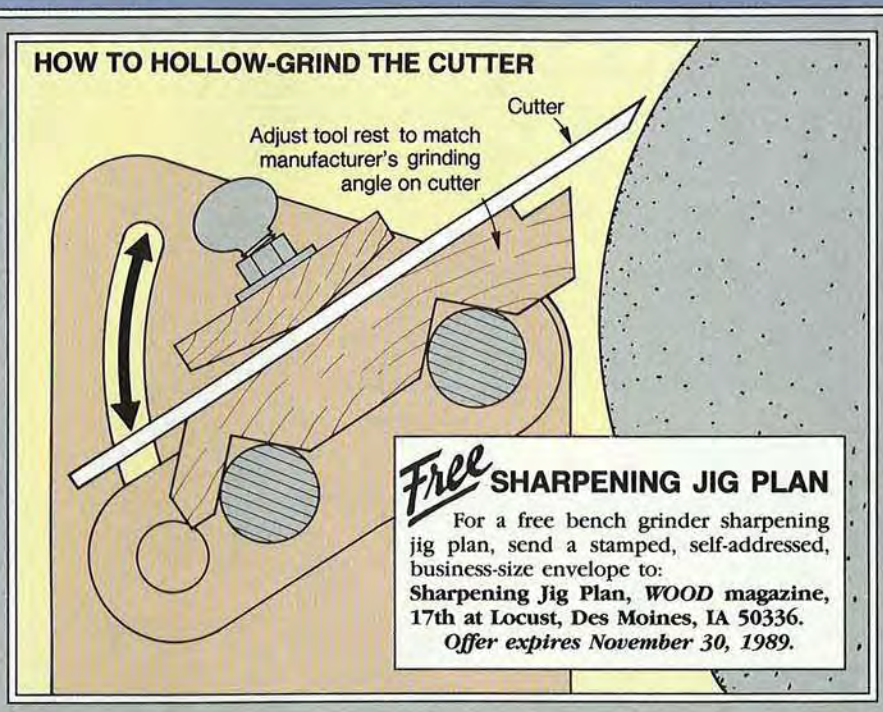
To restore the cutter's edge after normal use and following any grinding, use the two-step whetting process shown at *right*. First, lay the cutter flat on the stone and make 8–10 figure-8 motions as shown in Step 1. Then, turn the cutter over and place the edge on the stone as shown in Step 2. Stroke the cutter 8–10 times. To help you with Step 2, many commercially available honing guides will hold the blade at the proper angle while you roll the guide along the length of the stone. Repeat both steps as necessary until the cutter will easily slice through a sheet of paper.

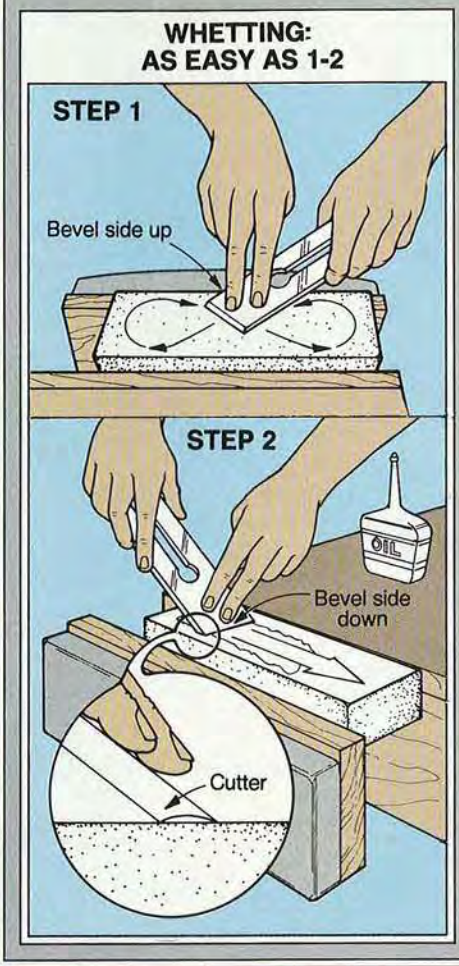
## EFFECTIVE PLANING: IT'S ALL IN THE ADJUSTMENTS

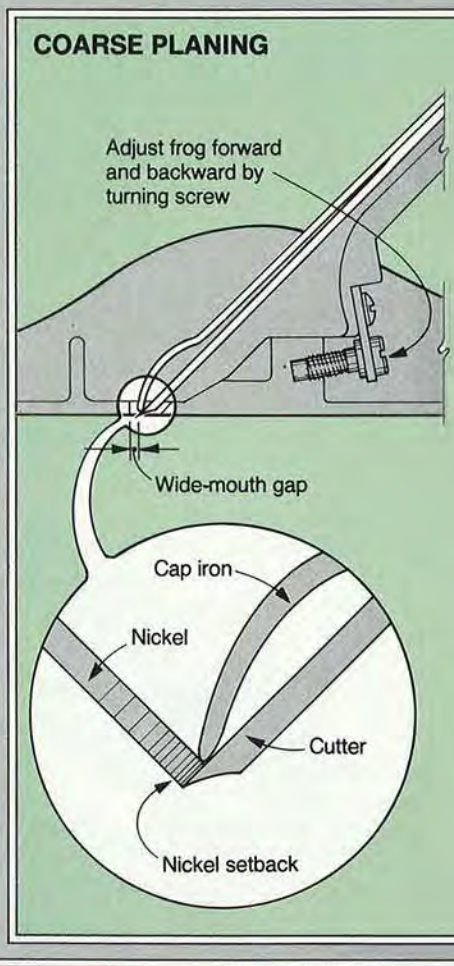
Even with a razor-sharp cutter, more than one woodworker has tried to plane a board, met with little success, and assumed his plane doesn't work. The real cause: improper adjustment.

Before you turn any adjustment mechanisms, however, stop to think about the hardness of the wood you're working and the kind of cut you want. For example, to make a cut that rapidly removes stock and leaves a relatively coarse surface, adjust the plane as shown in the green box at *right*.

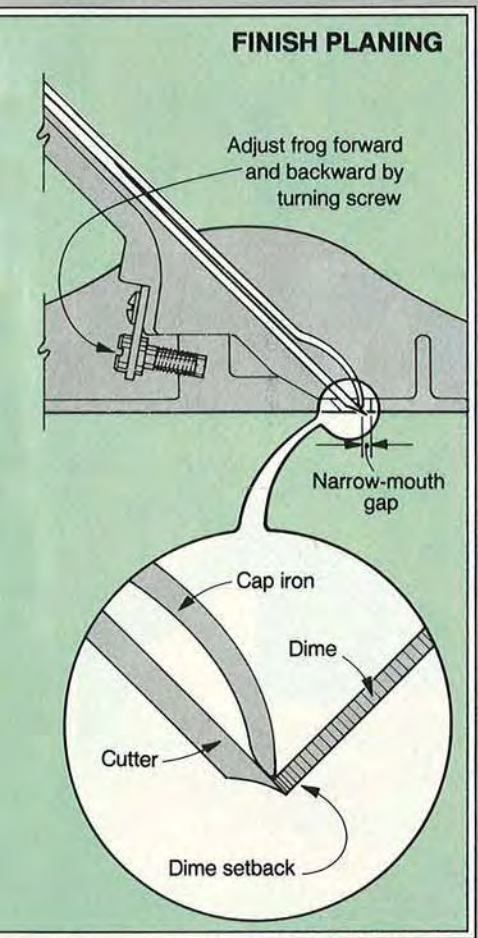
To put a finished surface on any material, set the cap iron and cutter for a dime setback and move the


HOW TO HOLLOW-GRIND THE CUTTER
Cutter
Adjust tool rest to match manufacturer's grinding angle on cutter
Free SHARPENING JIG PLAN
For a free bench grinder sharpening jig plan, send a stamped, self-addressed, business-size envelope to:
Sharpening Jig Plan, WOOD magazine, 17th at Locust, Des Moines, IA 50336.
Offer expires November 30, 1989.



**Apply paraffin to the sole of the plane to reduce surface drag.**




frog forward as shown *below left*. Both of these adjustments serve as a starting point—you'll need to practice these techniques and make adjustments as you work. For example, if the opening (known as the mouth) of your plane clogs with chips, then adjust the frog backward to enlarge the mouth. For a smoother surface, adjust the cutter for a shallower cut.

Next, adjust the cutter's edge so it's parallel to the sole of the plane. To accomplish this, turn the cutter-depth adjustment knob until the cutter extends about 1/16" out the bottom of the plane. Hold the plane as shown *below*, sight down the length of the sole, and move the lateral adjustment lever side to side to pivot the cutter edge.

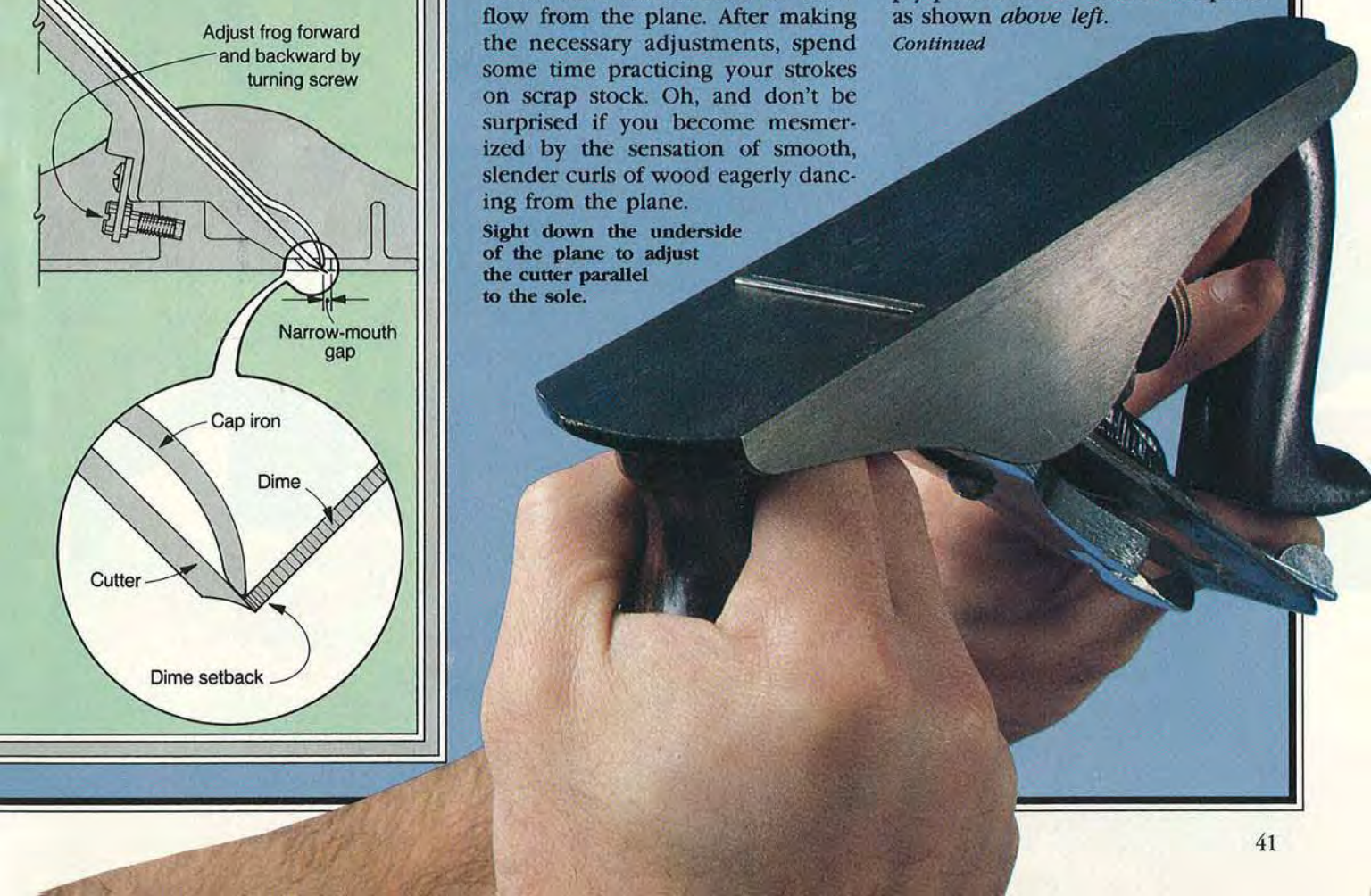
With that accomplished, readjust the cutter for a shallow cut (the blade should just peek out of the sole) before you do any planing. If the plane removes little or no stock, slightly increase the depth of the cutter until thin ribbons of wood flow from the plane. After making the necessary adjustments, spend some time practicing your strokes on scrap stock. Oh, and don't be surprised if you become mesmerized by the sensation of smooth, slender curls of wood eagerly dancing from the plane.

**Sight down the underside of the plane to adjust the cutter parallel to the sole.**

## SOME TIPS BEFORE YOUR PLANE TAKES FLIGHT

- Jim Boelling suggests holding the plane with the index finger of your dominant hand along the side of the cutter as shown on page 42. "Hold the plane with a firm grip that puts you in control, but don't use a 'death grip' that fatigues your hand," Jim says.
- Make sure you work with the grain of a board when planing it. If the grain changes directions, plane in the direction that results in the least amount of grain tearing, close up the mouth opening, and take shallow cuts.
- When planing long edges, keep your weight behind the plane by pushing the plane ahead of you, then walking up to it and repeating this motion. If your weight goes on or ahead of the plane, you'll feel uncomfortable and have less control over the planing stroke.
- Your plane will glide effortlessly over the workpiece when you apply paraffin to the sole of the plane as shown *above left*.

*Continued*



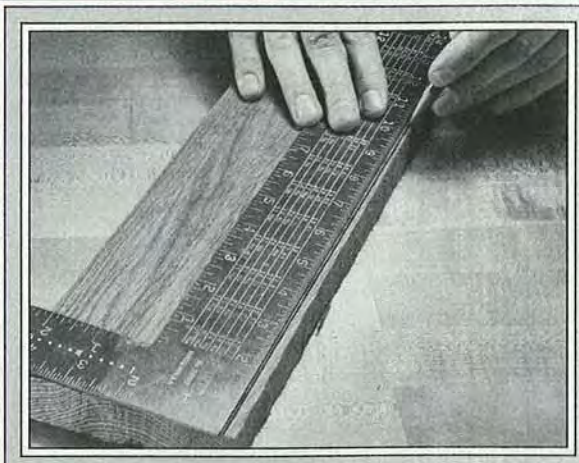
# BENCH-PLANE BASICS

## HOW TO JOINT ANY EDGE WITH A BENCH PLANE

Once you become proficient at the following method, you'll never need a power jointer for edge work—just your trusty smoothing (or larger) plane. First, use a straightedge to mark a line on one face of the board that shows you how much stock to remove from the edge as shown at *right*. Remember, you want to create a straight, clean edge while removing a minimum of stock.

Now, clamp the board in a vise and plane down any high spots. With the edge roughly straightened so far as your eye can tell, plane the entire length of the edge, making a shallow, full-length cut. Hold the plane at a slight angle to the edge to reduce drag. When you have planed almost to the line you drew on the board, use a straightedge as shown at *right* for a final check.

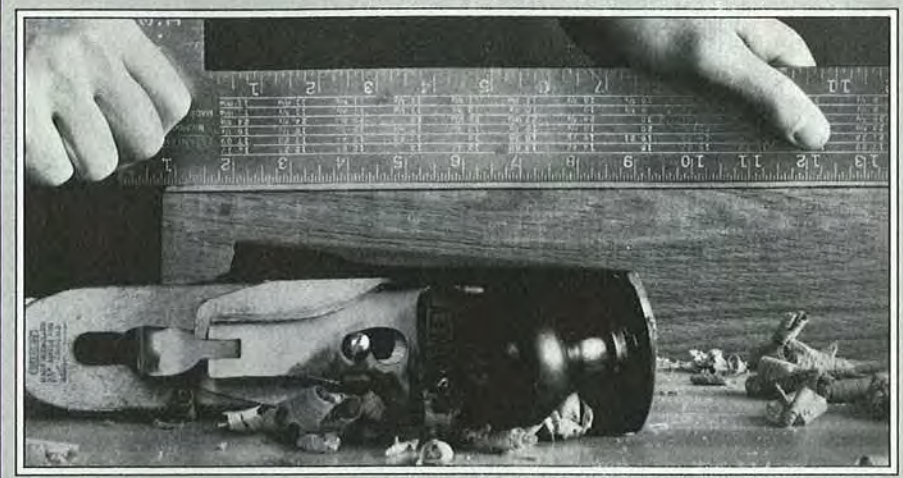
Then, test the edge for square as shown at *bottom right*. If the edge slopes to one side, slightly turn the lateral-adjustment lever to tilt the cutter and bring the edge square. Make several more shallow cuts, again checking for a square edge.

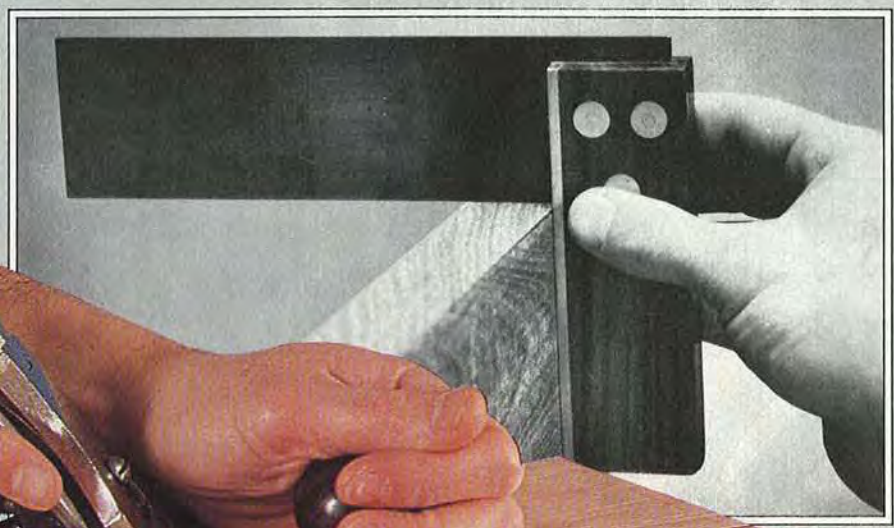


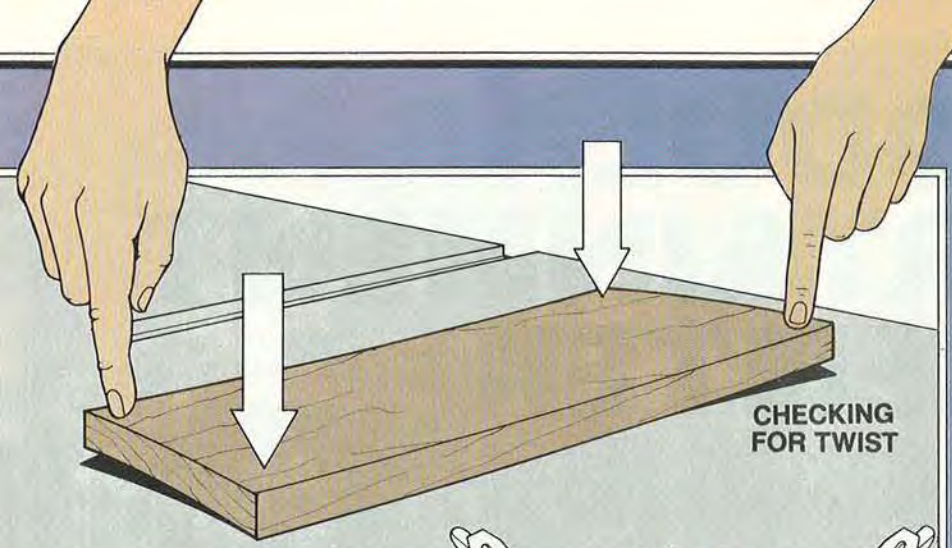
***Left:*** **Mark a straight line to help you know when to stop planing an edge.**

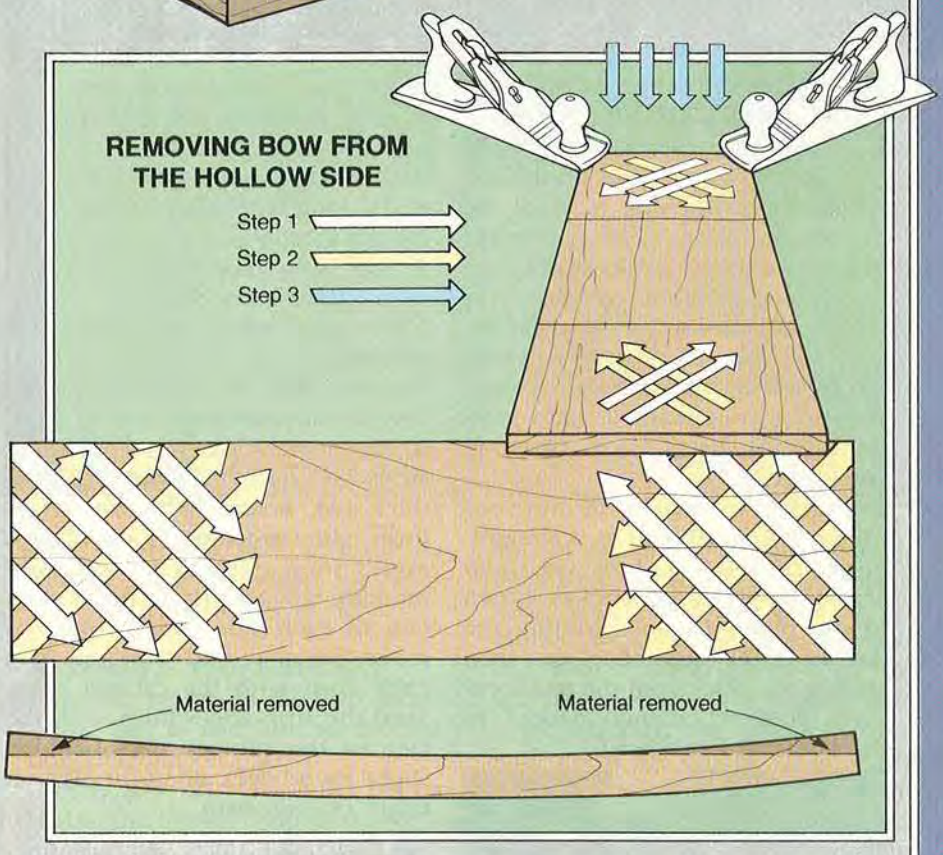
***Below:*** **A straightedge such as a framing square tells you when you've properly straightened the board's edge. To protect the cutter's edge, always lay the plane on its side.**

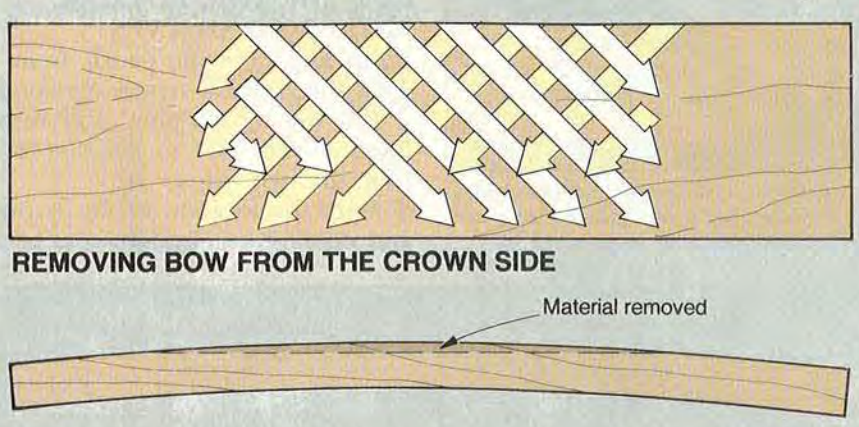
***Bottom:*** **With your try square, check the edge for square at several points along its length.**








## A SUREFIRE WAY TO PLANE SURFACES

For simplicity and affordability, it's tough to beat a bench plane as a means of removing warp from a board—once you know how. First, identify the type of warp and select the face side of the board based on grain, color, and absence of defects. If you suspect a twisted board, place it facedown on a flat surface such as a tablesaw top and press with your fingers on the board's opposite corners. As shown at *left*, pressing down on the low corners of the face side will make the board wobble. Arrows indicate the high corners on the face side.

Now, turn the board over and draw two parallel pencil lines on the face side from one high corner to the other. With your plane held at an angle to the edge of the board as shown at the *bottom* of page 42, start at one corner and make short strokes as you move down the marked alley. Remove just enough stock to make the pencil marks disappear and don't plane across the entire width of the board.

To remove bow from a board, start at one end on the hollow side of the board and scrub the plane diagonally as shown by the Step 1 arrows in the illustration at *left*. Then, change positions and scrub in the opposite direction (Step 2). Repeat this procedure on the other end of the board and for both ends until the warp disappears. Finish-plane the board by holding the plane parallel to the long edge of the board and planing the entire surface as the Step 3 arrows show. Check the flatness of this surface using a straightedge just as you checked an edge for straightness on page 42. The side view at *left* shows the effect of this procedure.

This technique also works on the crown side of a bowed board if you first work its center as shown in the illustration at *bottom left*. After truing one face of any warped board, you're ready to resaw or thickness plane the board to remove bow from the other side.

Written by Bill Krier with Jim Boelling

Photographs: Hopkins Associates; Bob Calmer

Illustrations: Kim Downing; Mike Henry

# MODULAR ENTERTAINMENT CENTER

Print this article

## A PROJECT DESIGNED WITH FLEXIBILITY IN MIND

**With just a radialsaw, router, and palm sander, Gary Schuknecht, of Troutdale, Oregon, set out to build an entertainment center in his garage workshop. When he finished, Gary knew he had a top-notch design.**

**"We needed an entertainment center for our stereo, TV, records, videotapes, and magazines," Gary told us. "I designed the units plenty deep so the TV and turntable wouldn't stick out the front. My wife, Linda, claims this is the nicest woodworking project I've ever made."**

**We liked Gary's design so well that we decided to build three sections ourselves and then share his design with you. Start modest and build just one unit, or if you have the materials, build all three.**

*Note: The three-unit entertainment center shown consists of a center electronics cabinet flanked by matching display units. Here, we explain how to build the electronics cabinet. Refer to the directions on page 92 to construct the display units.*

### OK, LET'S GET STARTED! FIRST, THE CABINET SIDES

**1** To form the cabinet's two sides (A), use the dimensions on the Exploded-View Drawing to mark the dado locations across the full width of a 4×8 sheet of oak plywood. See the Cutting Diagram on page 47 for layout reference. (The top dado becomes a rabbet later when you trim the plywood panel to length.) Double-check your marked dado locations—4×8 sheets of oak plywood aren't cheap.

**2** Chuck a ¾" straight bit into your router. Using a board as a straightedge, rout ¾" dadoes ¼" deep across the plywood panel as shown in the photo *below*. (Routing the dadoes in the large panel and then cutting the sides from the panel ensures perfectly aligned dadoes in the assembled cabinet.)

**Mark all dado locations first. Then, position and clamp a straightedge in place, and rout the ¾-wide dadoes.**

**3** Fit your portable circular saw with a plywood-cutting blade. *Cut along the top shoulder of the top dado* to trim the 8' plywood sheet to 83" long (see the drawing *below* for cut location).

**4** Rip two 21¼"-wide sides (A) from each plywood panel.

**5** Cut a ¼" rabbet ½" deep along the *back inside* edge of each cabinet side. Mark the location first; it's easy to rout along the wrong edge.

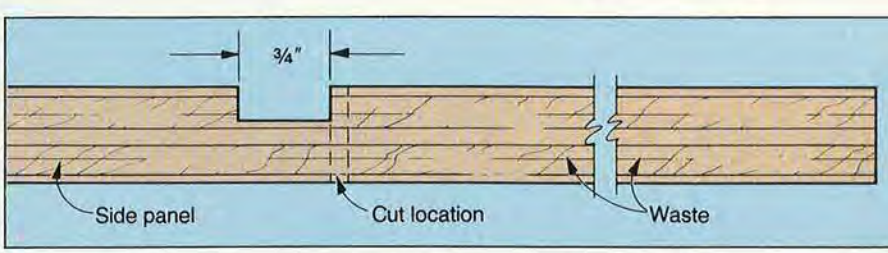
**6** Rip two ¼"-thick by 22"-long strips (B) from the edge of a ¾"-thick oak board. With the edges flush, glue and tape (most clamps aren't long enough so we used masking tape) a strip to the bottom end of each side panel. Later, remove the tape, and trim the strip ends flush with the cabinet sides. Sand the strip edges flush with the face of the cabinet sides. Sand a slight round-over along the bottom edges of each strip.

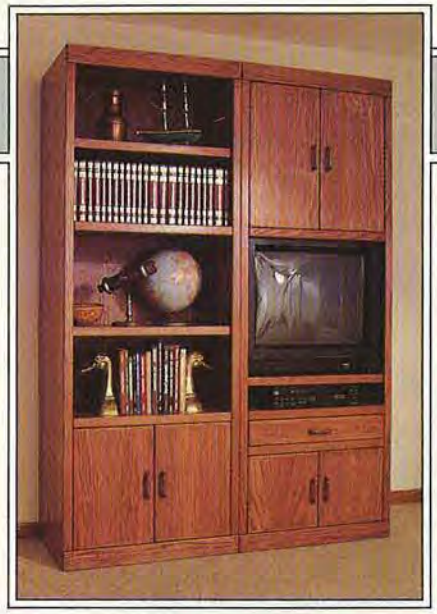
### CUT THE TOP, BOTTOM, AND FIXED SHELVES

**1** Rip two 21"-wide panels from a 4×8 sheet of oak-veneer plywood.

**2** Cut the top, bottom, and three fixed shelves (C) to length (29") from the two strips.

**3** Mark the location of the wiring and cooling notch along the back



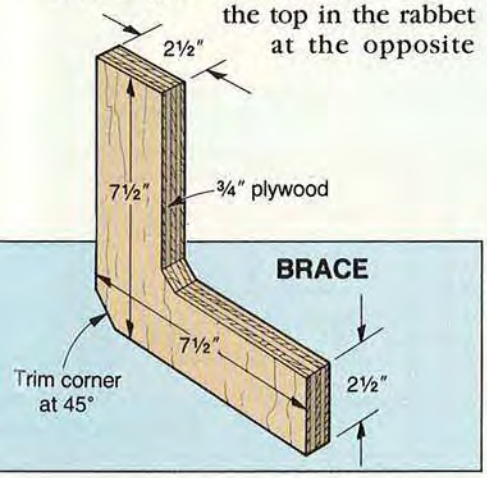


edge of the top shelf (see the Exploded-View Drawing for reference). Cut the notch to size.

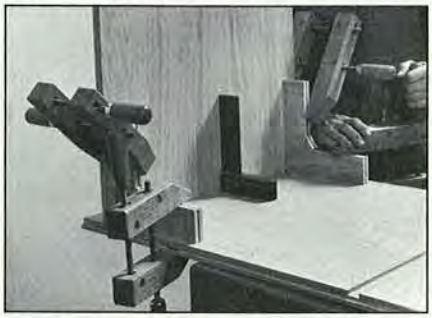
## ASSEMBLE THE CABINET

**1** Cut 10 braces to the size shown *below* and as laid out on the Cutting Diagram on page 47.

**2** Now, glue and clamp the bottom (C) in the lowest dado as shown in photo *below right*. Use two braces for stability and to ensure squareness. Repeat the operation to glue the top in the rabbet at the opposite end of the panel. Be sure that the *back edge* of the top and bottom is flush with the *inside edge* of the rabbet. Wipe off any glue squeeze-out with a damp cloth. After the glue dries, remove the braces. With a helper, turn the assembly over, and repeat the process to glue and clamp the second panel (A) to the assembly; check for square.




**3** Measure the opening, and cut the cabinet back (D) to size from ¼" oak plywood. Hold the back in place with masking tape, and mark the location of the two cooling slots shown on the Exploded-View Drawing. Remove the back from the cabinet. Drill a blade start hole and cut the slots to size. Set the back aside for now—to avoid stain marks across the grain, we'll stain it later, and then nail it in place.



**Clamp the bottom, shelves, and top into the dadoes, using scrap braces to keep them square until the glue dries.**

## NOW, PUT ON YOUR BEST FACE (FRAME)

**1** Rip and crosscut the oak face-frame top and bottom rails (E) to size—the width of the cabinet plus ⅛" to allow for a 1/16" overhang beyond each side panel.

**2** Rout ¼" round-overs along the front face of each rail where shown on the Exploded-View Drawing. Sand the routed rails smooth (we used a palm sander). Glue and clamp the rails to the cabinet with a 1/16" overhang on each end.

**3** Measure the distance between the top and bottom rails (E), and cut the face-frame stiles (F) to size. Rout ¼" round-overs along the front face of each stile. Sand the routed ends.

*Continued*

# ENTERTAINMENT CENTER

**4** As shown in the photo *below*, glue and clamp the oak stiles to the cabinet front, using a penny as a spacer. (We applied masking tape to the adjoining areas to protect the plywood from excess glue.) Allow the glue to dry, and then remove the clamps and tape.

**5** Turn the cabinet over so it's resting on its face. Apply masking tape to the areas next to the dadoes. Brush glue in the dadoes in the cabinet sides. Then, slide the three shelves (C) into place, and use the braces to keep the shelves square while the glue dries.

**Using a penny as a spacer for an even overhang, glue and clamp the stiles to the cabinet front.**

**6** Measure the distance between the stiles (F), and cut the shelf facing (G) to length. Rout ¼" roundovers along the front of each. Glue and clamp a facing strip to the front of each of the three shelves.

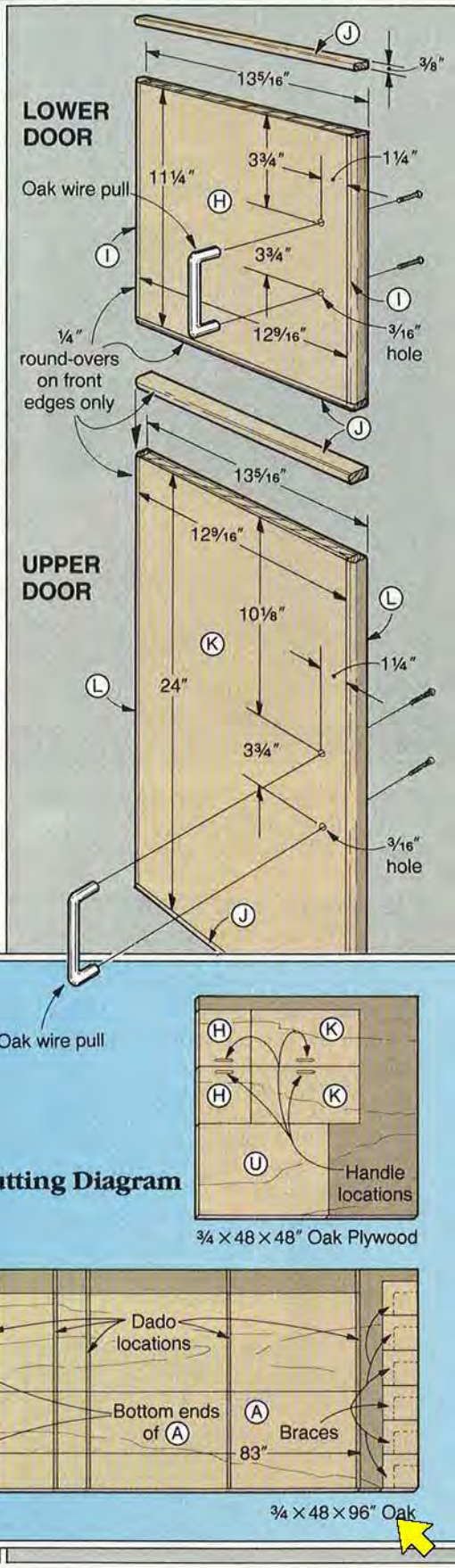
## THE DOORS: HERE'S HOW TO BUILD AND HANG THEM

**1** Cut the lower door panels (H) to size. To match the grain from door to door, note and mark the approximate location of the oak wire pulls on each door where shown on the Cutting Diagram.

**2** Rip four ⅜"-wide by 12"-long banding strips (I) from the edge of ¾" stock. Glue and clamp them to the sides of both door panels. Later, trim the ends of the strips flush with the top and bottom of the door panels. Repeat this process to cut and adhere the banding strips (J) to the top and bottom of each door. Sand the doors smooth.

**3** Repeat steps 1 and 2 *above* to build the upper doors (J, K, L).

*Continued*



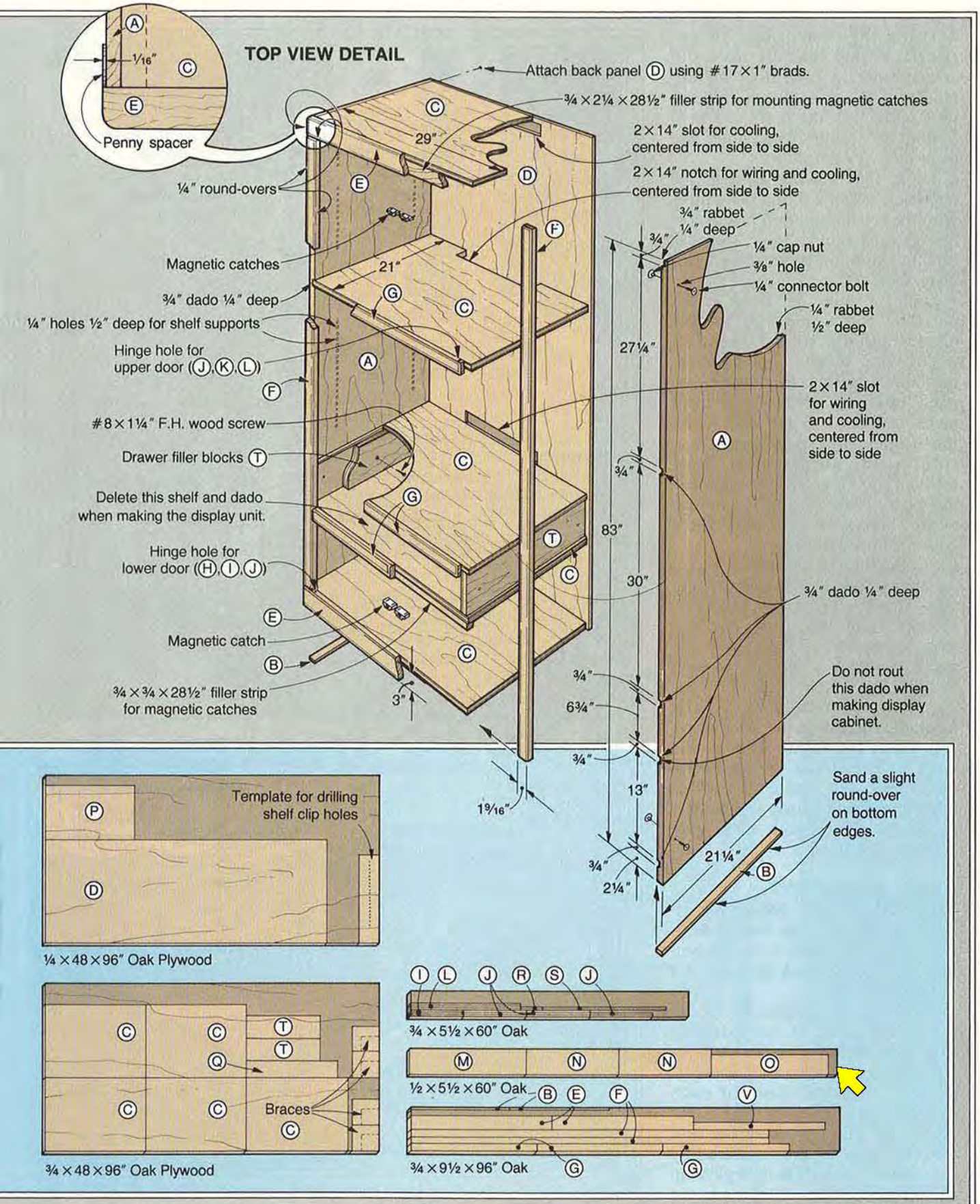

## Bill of Materials

| Part | | Finished Size* T | W | L | Matl. | Qty. |
|---|---|---|---|---|---|---|
| THE BASIC CABINET | | | | | | |
| A* | sides | ¾" | 21¼" | 83" | OP | 2 |
| B* | strips | ¾" | ¼" | 21¼" | O | 2 |
| C | shelves | ¾" | 21" | 29" | OP | 5 |
| D | back | ¼" | 29½" | 80¾" | OP | 1 |
| THE FACE FRAME | | | | | | |
| E | rails | ¾" | 3" | 30⅛" | O | 2 |
| F | stiles | ¾" | 1 9/16" | 77" | O | 2 |
| G | shelf facing | ¾" | 1½" | 27" | O | 3 |
| THE UPPER AND LOWER DOORS | | | | | | |
| H | panels | ¾" | 12 9/16" | 11¼" | OP | 2 |
| I* | banding | ¾" | ⅜" | 11¼" | O | 4 |
| J* | banding | ¾" | ⅜" | 13 5/16" | O | 8 |
| K | panels | ¾" | 12 9/16" | 24" | OP | 2 |
| L* | banding | ¾" | ⅜" | 24" | O | 4 |
| THE DRAWER | | | | | | |
| M | front | ½" | 5⅜" | 25½" | O | 1 |
| N | sides | ½" | 5⅜" | 20" | O | 2 |
| O | back | ½" | 4⅞" | 25½" | O | 1 |
| THE DRAWER (Continued) | | | | | | |
| P | bottom | ¼" | 15¾" | 25½" | OP | 1 |
| Q | face | ¾" | 5" | 26" | OP | 1 |
| R* | banding | ¾" | ⅜" | 5" | O | 2 |
| S* | banding | ¾" | ⅜" | 26¾" | O | 2 |
| T | filler blocks | ¾" | 6¾" | 21" | OP | 2 |
| THE ADJUSTABLE SHELF | | | | | | |
| U | shelf | ¾" | 20" | 28¼" | OP | 1 |
| V | facing | ¾" | 1½" | 28¼" | O | 1 |
| THE DISPLAY CABINET DOORS | | | | | | |
| W | panels | ¾" | 12 9/16" | 18¾" | OP | 2 |
| X | banding | ¾" | ⅜" | 18¾" | O | 4 |
| Y | banding | ¾" | ⅜" | 13 5/16" | O | 4 |

**Key:** O=oak OP=oak plywood

*Cut parts marked with an * larger initially, and trim them to finished size as directed in the how-to instructions.

**Supplies:** #17×1" brads, #8×1¼" flathead wood screws, #8×1" flathead wood screws, #17×¾" brads, stain finish.


TOP VIEW DETAIL
Penny spacer
1/16"
Attach back panel (D) using #17×1" brads.
¾×2¼×28½" filler strip for mounting magnetic catches
2×14" slot for cooling, centered from side to side
2×14" notch for wiring and cooling, centered from side to side
¼" round-overs
Magnetic catches
¾" dado ¼" deep
¼" holes ½" deep for shelf supports
Hinge hole for upper door (J,K,L)
#8×1¼" F.H. wood screw
Drawer filler blocks (T)
Delete this shelf and dado when making the display unit.
Hinge hole for lower door (H,I,J)
Magnetic catch
¾×¾×28½" filler strip for magnetic catches
29"
21"
3"
¾" rabbet ¼" deep
¼" cap nut
⅜" hole
¼" connector bolt
¼" rabbet ½" deep
27¼"
2×14" slot for wiring and cooling, centered from side to side
¾"
83"
30"
¾" dado ¼" deep
Do not rout this dado when making display cabinet.
6¾"
1⁹⁄₁₆"
13"
21¼"
2¼"
Sand a slight round-over on bottom edges.
Template for drilling shelf clip holes
¼×48×96" Oak Plywood
Braces
¾×48×96" Oak Plywood
¾×5½×60" Oak
½×5½×60" Oak
¾×9½×96" Oak

# ENTERTAINMENT CENTER

**4** Using the dimensions on the Door Drawing, carefully mark the centerpoints on each door for the holes you'll use to fasten the oak wire pulls. Drill the holes to size.

**5** Rout ¼" round-overs along the front face of each door.

**6** Using the drawing at *right* for reference, fasten a fixing plate flush with the top and bottom inside corners of each cabinet door. (See the Buying Guide on page 92 for hardware source.)

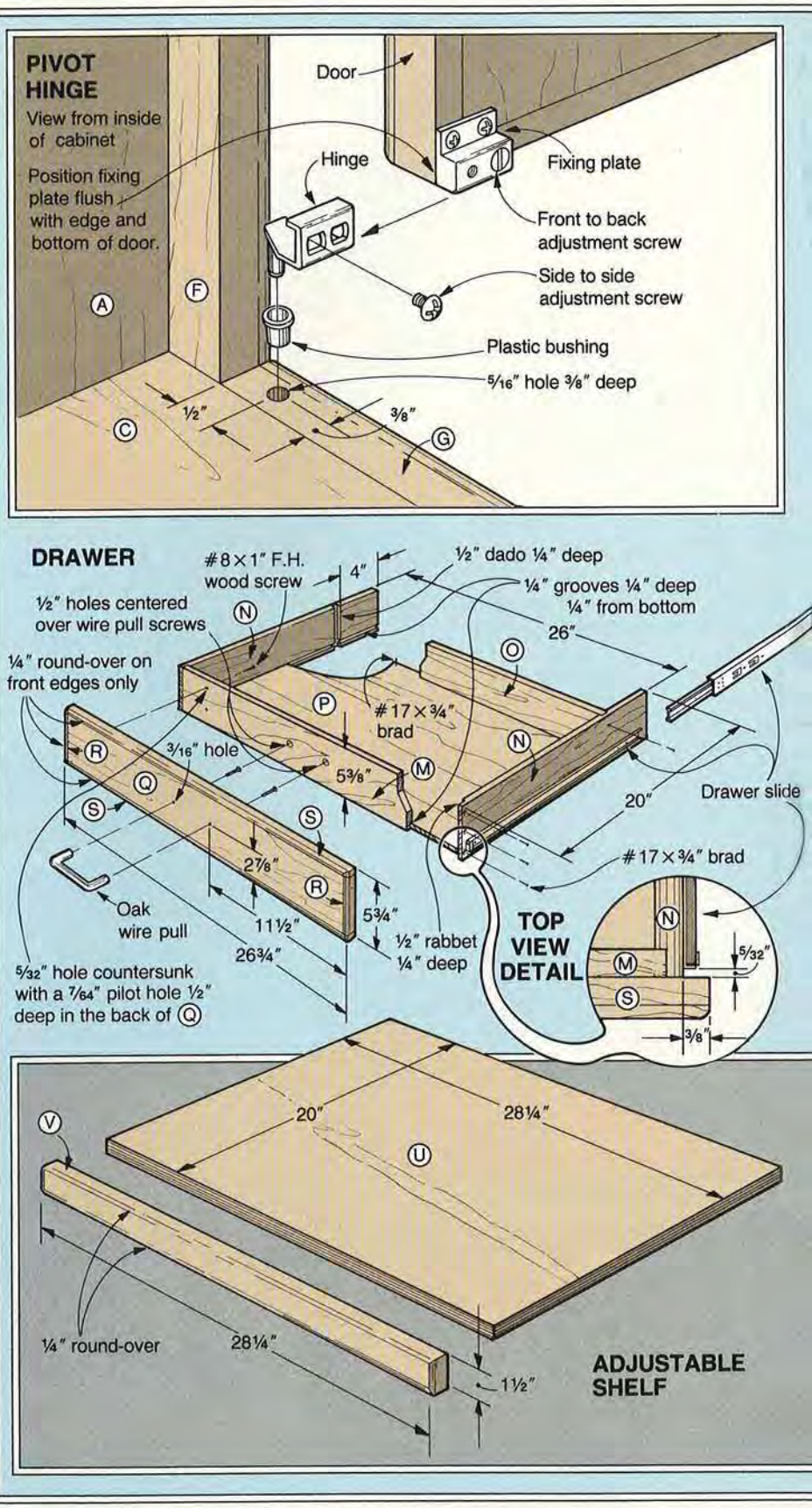
**7** Drill 5/16" holes 3/8" deep in the rails (E) and facing (G) for the plastic bushings where shown on the drawing at *right*. Insert a bushing into each hole. Fit a hinge into each bushing, slide the fixing plates (attached to the door) into the hinges, and then thread the side-to-side adjustment screw through the hinge and into the fixing plate. Position the two adjustment screws as necessary for a good fit of the doors.

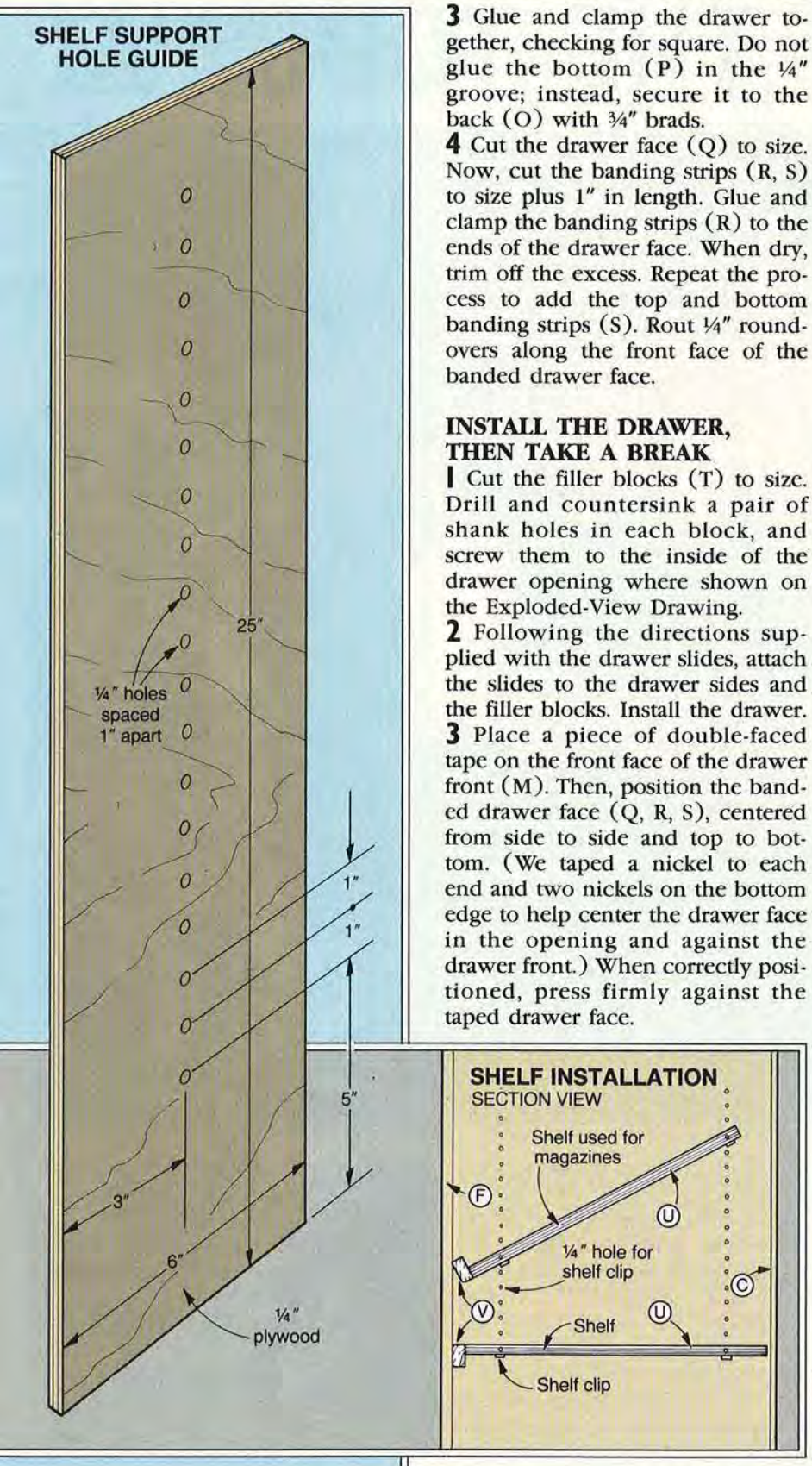
**8** Cut the filler strips (dimensioned on the Exploded-View Drawing) to size—these support the magnetic catches. Glue and clamp the oak strips to the back of the top rail (E) and to the back of the bottom shelf facing (G) where shown on the Exploded-View Drawing. Attach magnetic catches to the filler strips, and fasten the strike plates to the back of the doors. Remove the doors from the cabinet. Now, remove the fixing plates, strikes, and hinges (you'll reattach them after applying the finish).

## NEXT COMPONENT: THE VIDEOTAPE DRAWER

**1** Rip and crosscut the drawer front (M), sides (N), back (O), and bottom (P) to the sizes listed in the Bill of Materials.

**2** Cut or rout a ½" rabbet ¼" deep across the front of each drawer side. (See the Drawer Drawing for reference.) Now, cut a ½" dado ¼" deep 4" from the back of each drawer side. Finally, cut a ¼" groove ¼" deep ¼" from the bottom edge into the drawer sides (N) and drawer front (M). Dry-clamp the pieces to check the fit.






**3** Glue and clamp the drawer together, checking for square. Do not glue the bottom (P) in the ¼" groove; instead, secure it to the back (O) with ¾" brads.

**4** Cut the drawer face (Q) to size. Now, cut the banding strips (R, S) to size plus 1" in length. Glue and clamp the banding strips (R) to the ends of the drawer face. When dry, trim off the excess. Repeat the process to add the top and bottom banding strips (S). Rout ¼" round-overs along the front face of the banded drawer face.

## INSTALL THE DRAWER, THEN TAKE A BREAK

**1** Cut the filler blocks (T) to size. Drill and countersink a pair of shank holes in each block, and screw them to the inside of the drawer opening where shown on the Exploded-View Drawing.

**2** Following the directions supplied with the drawer slides, attach the slides to the drawer sides and the filler blocks. Install the drawer.

**3** Place a piece of double-faced tape on the front face of the drawer front (M). Then, position the banded drawer face (Q, R, S), centered from side to side and top to bottom. (We taped a nickel to each end and two nickels on the bottom edge to help center the drawer face in the opening and against the drawer front.) When correctly positioned, press firmly against the taped drawer face.

**4** Remove the drawer and taped-on face, and clamp the drawer face to the drawer. Drill two holes through the drawer face and drawer front for the wire pull screws (see the Drawer Drawing for reference). From inside the drawer, drill and countersink four holes through the drawer front and just into the back of the drawer face. Drill a 7/64" pilot hole ½" deep into the back side of the drawer face. Later, you'll fasten the drawer face to the drawer front with wood screws.

**5** Pry the drawer face from the drawer front and remove the tape. Enlarge the two 5/32" holes for the wire pull in the drawer front (M) to ½". Screw the drawer face to the drawer front.

## START THE MUSIC— YOU'RE NEARLY FINISHED

**1** Cut the adjustable shelf (U) and the front facing strip (V) to size. Rout a ¼" round-over along the front face of the strip.

**2** Glue and clamp the facing strip to the front of the shelf. The top edge of the strip sits flush with the top face of the shelf.

**3** To drill the shelf-clip holes for the adjustable shelf, start by making a hole guide like the one shown at *left*. Position the guide flush with the back edge of the rabbet in the cabinet side, and drill ¼" holes. (We used a stop on our drill bit to keep from drilling through the cabinet side.) Keeping the same end down, move the guide from the back to the front along each side and drill the holes.

**4** If you plan to build more than one cabinet, we recommend using joint connector bolts and cap nuts to hold a set of cabinets together. (See the Buying Guide on page 92 for our source and the Exploded—View Drawing for reference.)

**5** Sand smooth the cabinet, cabinet back, doors, adjustable shelf, and drawer. Apply the stain and finish. Finally, glue and nail the back into the rabbet in the back of the cabinet. Attach the hardware, install the drawer, and hang the doors.

*Continued on page 92*

Print this article

LOW-VOLTAGE LIGHTING

# TALK OF THE TOWN AT

**You'll be able to enjoy your beautiful yard and walkways 'round the clock once you build a set of these landscape lighting fixtures. We've kept the construction simple, and because the lights operate at 12 volts, you can wire the system yourself—safely and inexpensively. Best of all, operating these handsome fixtures costs only about 5 cents an evening.**

*NOTE: The instructions, Bill of Materials, and Cutting Diagram give the directions and number of pieces needed to build a single light box. To make additional boxes, be sure to cut all identical pieces at the same time to ensure uniformity.*

*The kit described in the Buying Guide on page 53 includes the prices for kits with both four and eight lights (eight is the maximum number you can use with one power pack). Build as many light boxes as you'll need.*

## CONSTRUCT THE LIGHT BOXES TO GET ROLLIN'

**1** Cut the center panel strips (A) to the size listed in the Bill of Materials plus 2" in length. Now, crosscut a 1¼"-long spacer (B) from one end of each center strip. Then, trim each center strip (A) to a 16¾" finished length. And finally, cut the side strips (C, D) to size.

**2** With the ends and surfaces flush, glue and clamp each of the two narrow redwood panels (A, B, C) and the two wide panels (A, B, D) together as shown in the photo on the opposite page. (Note that we protected the relatively soft redwood from the metal clamp jaws with scrap blocks. We also used resorcinol, a waterproof adhesive, for our light boxes.) Immediately wipe or scrape off excess glue.

**3** Rip and crosscut the redwood shelf cleats (E) to size.

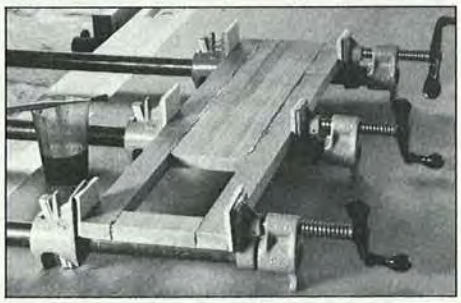
**4** Mark a hole centerpoint ¾" from both ends of both cleats (see the drawing titled Constructing the Light Box for reference). Drill and countersink 5/32" shank holes at each mark. Now, mark the cleat location on each narrow panel (A, B, C); see the above-mentioned drawing for positioning particulars. Lightly clamp or tape the cleats in place. Using the previously drilled shank holes as guides, drill a pair of 7/64" pilot holes ½" deep into each side panel. Secure cleats into position with #8×1¼" wood screws.

**5** With the ends and surfaces of the four side panels flush, glue and clamp together. Check for square. Immediately remove excess glue.

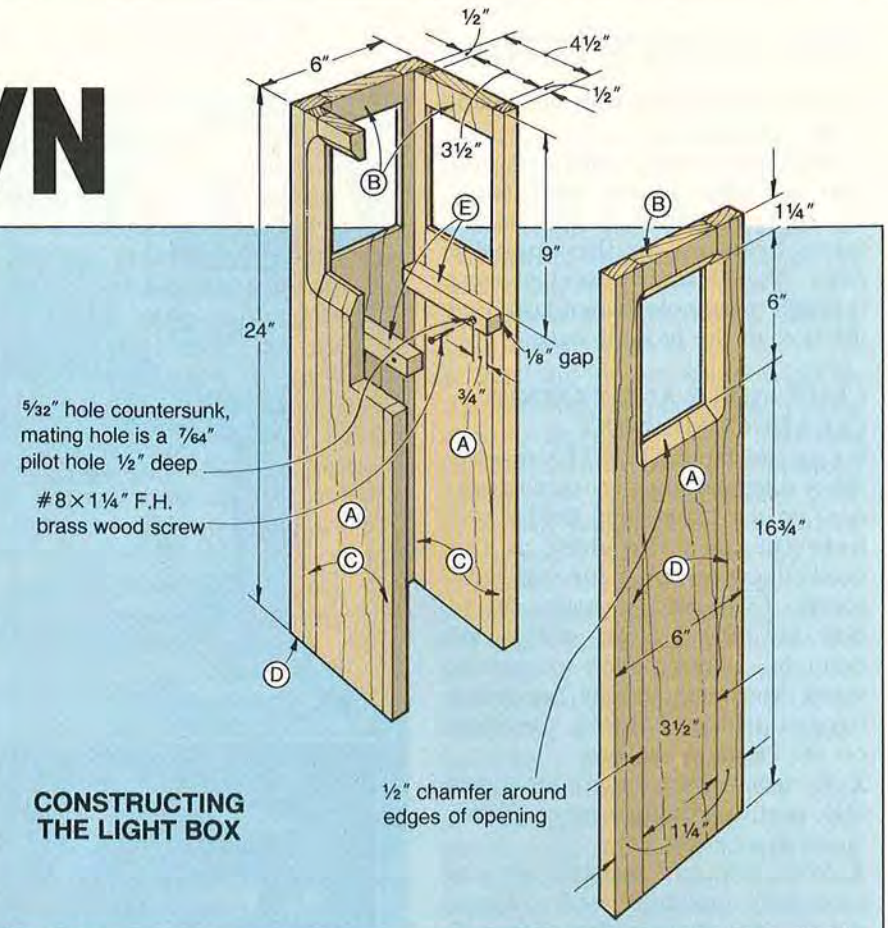
**6** Sand the light box smooth. Fit your router with a chamfer bit, and rout a ½" chamfer along the inside edges of each window opening.

*Continued*

# SUNDOWN



**Using wood clamp blocks to prevent denting the soft redwood, glue and clamp each lightbox side panel together.**




## CONSTRUCTING THE LIGHT BOX

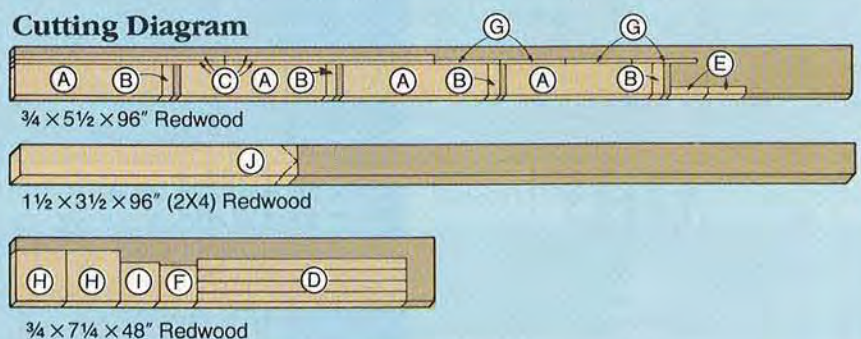
### Bill of Materials

| Part | | Finished Size* T | W | L | Matl. | Qty. | Part | | Finished Size* T | W | L | Matl. | Qty. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A* | center panel | ¾" | 3½" | 16¾" | R | 4 | F | lamp shelf | ¾" | 4⅜" | 4⅜" | R | 1 |
| B* | spacer | ¾" | 3½" | 1¼" | R | 4 | G* | corner cleat | ½" | ½" | 7⅜" | R | 4 |
| C | side strip | ¾" | ½" | 24" | R | 4 | H | lid top | 1½" | 6" | 6" | LR | 1 |
| D | side strip | ¾" | 1¼" | 24" | R | 4 | I | lid bottom | ¾" | 4½" | 4½" | R | 1 |
| E | shelf cleats | ¾" | ¾" | 4¼" | R | 2 | J | stake | 1½" | 3½" | 32" | R | 1 |

**Key:** R-redwood, LR-laminated redwood
*Cut parts marked with an * larger initially, and trim them to finished size as directed in the how-to instructions.

**Supplies:** resorcinol, #8×1¼" flathead brass wood screws, 2" galvanized deck screws, stain, finish, ⅛" white acrylic.

### Cutting Diagram



# LOW-VOLTAGE LIGHTING

To prevent chip-out, rout the chamfer in two passes.

**7** Mark the centerpoints, and drill two ⅛" holes in the back panel where dimensioned on the Ground Stake Drawing on the opposite page. You'll later insert screws through these holes when fastening the box to the ground stake.

### LAMP SHELF AND CORNER CLEATS COME NEXT

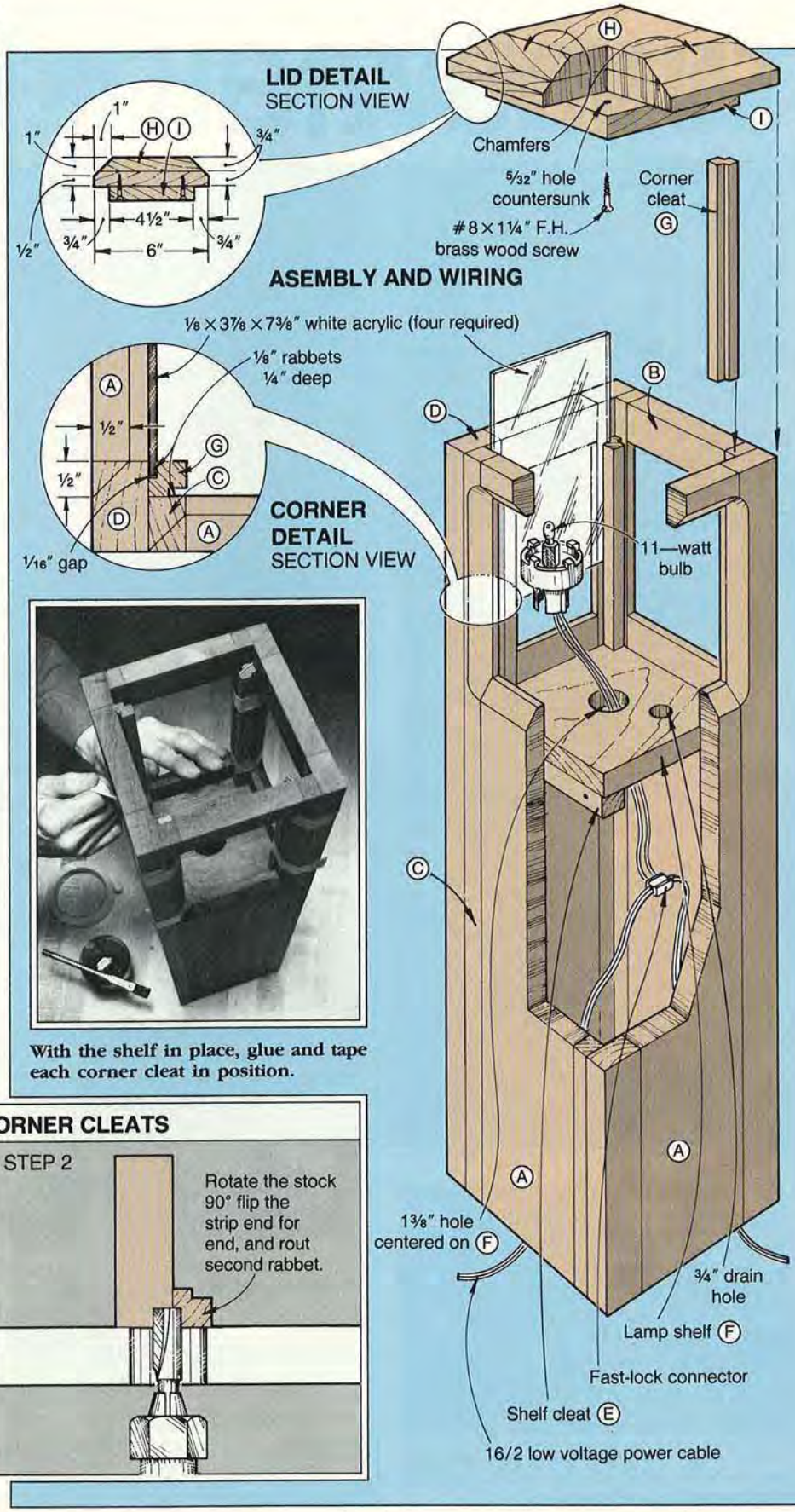
**1** Cut the lamp shelf (F) to size. Draw diagonal lines (corner to corner) on the lamp shelf. Drill a 1⅜" hole through the shelf at the marked centerpoint for the bulb socket. (We used a spade bit to drill the hole.) Now, drill a ¾" drain hole in the shelf to prevent water from accidentally becoming trapped inside. Position the shelf on the cleats in the box.

**2** To make the four corner cleats (G), start by cutting a piece of redwood to ½×½×32".

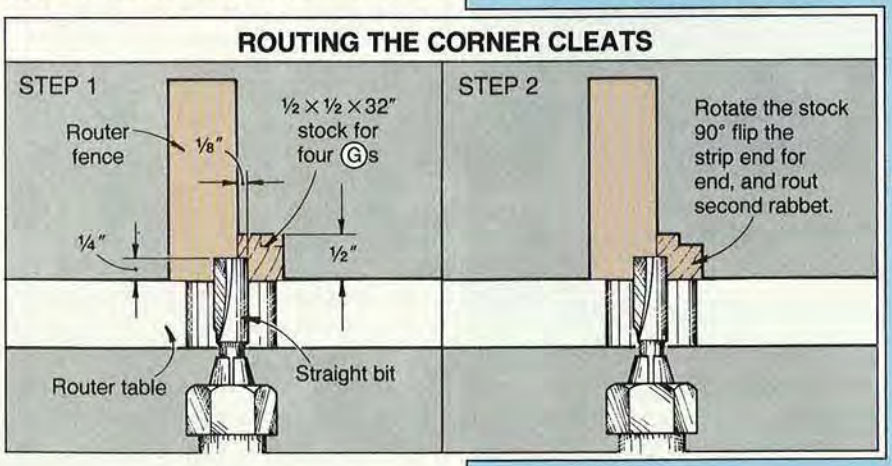
**3** Now, chuck a straight bit into your table-mounted router. Using the two-step drawing *below* for reference, rout a pair of ⅛" rabbets ¼" deep the length of the redwood strip. (You also could use a dado blade mounted to your tablesaw to form the rabbets.)

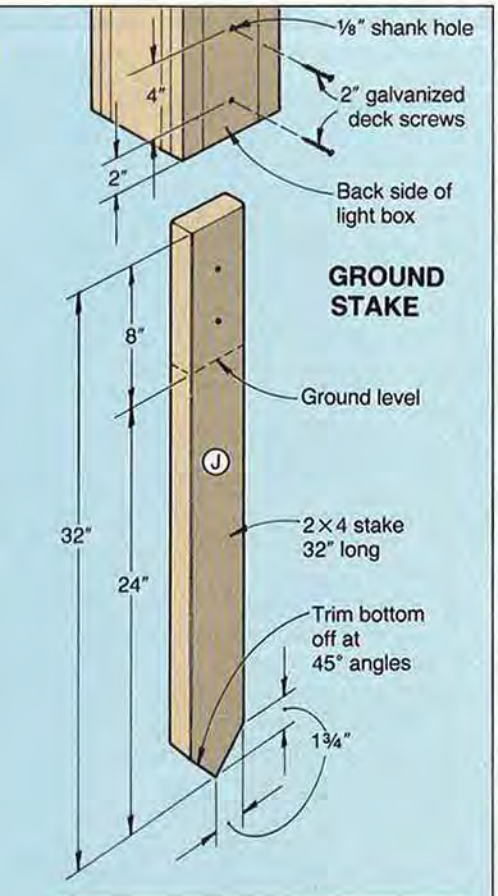
**4** Crosscut four corner cleats (G) to length from the 32" rabbeted redwood strip.

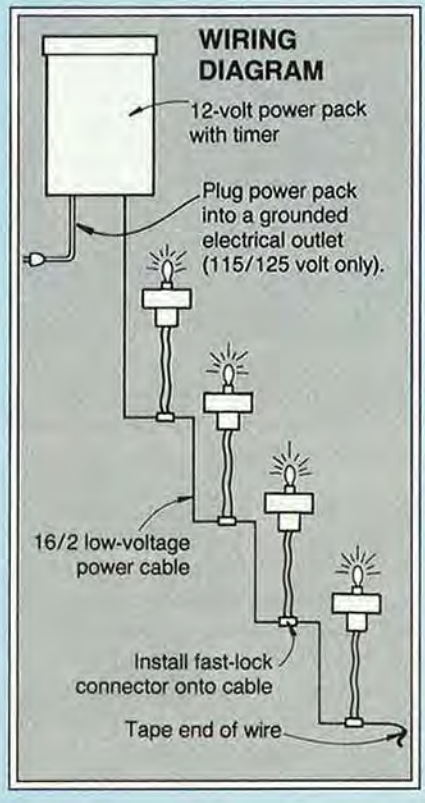
**5** Glue a redwood cleat in each corner of each light box as shown in the photo at *right*. (We applied glue to the mating edges. Then,




With the shelf in place, glue and tape each corner cleat in position.







WIRING DIAGRAM
12-volt power pack with timer
Plug power pack into a grounded electrical outlet (115/125 volt only).
16/2 low-voltage power cable
Install fast-lock connector onto cable
Tape end of wire

with the shelf in place, we held the cleats in position with masking tape.) Immediately remove glue squeeze-out from the rabbets (we used a thin strip of wood to remove the excess glue). After the glue has dried, remove the tape.

**6** Using the tablesaw fitted with a carbide-tipped blade, cut the ⅛" white acrylic panels to 3⅞×7⅜". Home centers sell this material for ceiling lights. Check each acrylic panel for proper fit. You want a 1/16" gap between the acrylic and the corner cleats to allow for expansion and contraction of the light box. (We forgot to do this the first time around, and later we had to replace a cracked panel.)

## TO TOP IT ALL OFF, CONSTRUCT THE LID

**1** From ¾"-thick redwood stock, cut two 6" squares and one 4½" square for the lid pieces (H, I). Glue and clamp the two 6" squares together with the edges flush. Allow the glue to dry.

**2** Tilt your tablesaw blade 45° from vertical. Using a push block for safety, cut a 1" chamfer along each edge of the 6"-square lamination.

**3** Center and clamp (no glue) the 4½" square (I) to the bottom face of the chamfered square. Temporarily fasten the squares together with a 1" brad. Remove the clamp and check the fit of the lid. If the edges of the lid aren't flush with the outside surfaces of the light box, reposition the 4½" square lid. Drill a pair of pilot holes and screw the 4½" square in place.

**4** Sand the light box and lid. Finish as desired. (We finished our light boxes and lids with Flood Company's CWF Clear Wood Finish. Call 800-321-3444 for the dealer nearest you. In Canada, call 216/650-4074 for this information.)

## HERE'S HOW TO LOCATE AND WIRE THE LIGHTS

***Note:** The lighting kit described in the Buying Guide comes complete with installation instructions. We'll cover the basics here; see the supplied information for details.*

**1** Cut one stake per light box to the size shown on the Ground Stake Drawing at *left*. (We cut ours from a redwood 2×4; a CCA-treated 2×4 would also work.) Trim the bottom of the stake to a point where shown on the drawing.

**2** Position the light boxes in your yard where desired.

**3** Bare the power cable wires at one end, and connect the bare-wire ends to the power cable terminals on the bottom of the unplugged power pack. Fasten the power pack to a wall within 1' of a standard grounded electrical outlet (115/125 volt only). Run the power cable from the power pack to the light boxes where shown on the Wiring Diagram Drawing. It is not necessary to bury the cable. If you wish to hide the cable from view, bury it a few inches.

**4** Push a socket into the 1⅜" hole in each light box shelf. Run the power cable from the power pack to each light box. Slide each fast-lock connector onto the power cable where a light will be located. (The fast-lock connector pierces the power cable to make the connection; no soldering or wire stripping needed.)

**5** Drive a stake into the ground and screw the back of the light box to the stake. Check the box for plumb and tilt accordingly.

**6** Slide the acrylic panels into place, add the bulb, and fit a lid onto each light box. Finally, set the timer, settle into a lawn chair, and wait for sundown to enjoy.

## BUYING GUIDE

• **Lighting kit.** Intermatic 12-volt power pack (transformer) with timer, 50' of low-voltage 16/2 cable, four socket assemblies, four 11-watt bulbs. $68.50 ppd. ($75 Canadian). Add four additional sockets and bulbs for $10.00. Albright Lighting, 3029 Ingersoll Ave., Des Moines, IA 50312.

Produced by Marlen Kemmet
Project Design: James R. Downing
Photographs: Hopkins Associates
Illustrations: Kim Downing; Bill Zaun
Graphic Design: Perry McFarlin

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# WAX THE PERFECT

**From a refinishing pro, a preservation expert, and furniture manufacturers, the answer seems to be "yes."**

Wax is the wear and tear, abrasion layer of fine wood furniture," says Ron Ashby, a professional woodworker, refinisher, lecturer, and owner of Liberon Supplies in Mendocino, California. "Superficial scratches, dings, and dents should happen to the wax layer—not the finish you slaved over."

## DON'T DABBLE IN DUST

Despite the multitude of furniture care products that promise to "feed" or "polish" your fine furniture, Ashby believes high-quality furniture wax is the best choice. "All the other care products available attract dust with the residue they leave behind," he says.

At Virginia's Colonial Williamsburg, Wallace Gusler, director of conservation, oversees the preservation of authentic colonial furniture. "Our primary concern with pieces that have an intact, original finish is conservation," he says. "For that, we use wax." And, Gusler believes, all wood furniture, not just historic pieces, deserves wax protection. "Everyone collects furniture to some extent," he notes, "but their collection happens to be their household furniture."

What about lemon oil, another popular wood-care product? Gusler says, "The value of oil to wood is folklore. Of course, oil gives a wood finish a superficial shine, but it isn't beneficial. In fact," he elaborates, "commercial lemon oil has nothing to do with lemons. It's essentially kerosene, and can be harmful to a finish."

Then, there are aerosol spray cleaners and polishes that contain silicone. They may not harm the present finish, say Ashby and Gusler, but they will cause problems down the road if you contemplate refinishing. "Products with silicones are cheap, quick, and easy, but they don't protect," comments Ashby. "Besides, silicones make refinishing difficult because, even after stripping, a new finish won't adhere."

## TOO MUCH WAX?

What about the infamous "wax buildup" that advertising people say their products avoid? Roy Frizell, Supervisor of Quality Control, Ethan Allen, Inc., Danbury, Connecticut, recommends wax only in small doses. "We tell customers to dust with a damp cloth, then maybe every six months use wax. Otherwise," he comments, "they'll put wax on every time they dust."

Ed Finnety, customer service manager at Harden Furniture, McConnellsville, New York, acknowledges that most people overpolish. "They're zealous," he says.

Ashby finds amusement in some companies' product claims denying wax buildup. "If you avoid wax buildup, you don't have any protection for your furniture," he muses. "It does build up, but it builds up clear."

According to Colonial Williamsburg's Gusler, wax should never create a buildup problem when used in moderation. That's because all the wax you put on doesn't remain there. "It gets buffed, worn off, and even oxidizes," he says.

Old wax can be removed with special products developed just for the purpose, according to Ashby. "But, if the furniture is heavily soiled, too, you should use a wood cleaning and wax-removing product, such as Liberon Wood Cleaner and Wax Remover."

## POLISH-ON PROTECTION

You can apply wax over any finish—penetrating oils, varnish, lacquer, or polyurethane—Ashby advises. But, only buy a high-quality, cabinetmaker's wax, one designed specifically for wood furniture, at woodworking stores or through mail order catalogs. Some notable brands include: Liberon's Black Bison, Goddard's, Butcher's Wax, Antiquax, and Renaissance Wax.

Products such as these are traditionally formulated from a number of waxes—carnauba, beeswax, synthetics, and vegetable. Expect to pay from $8 to $10 for a one-pound tin of good quality cabinetmaker's paste wax. And, notes Ashby, don't confuse floor wax with furniture wax. Floor wax won't hold up on furniture because it's actually softer. He notes, too, that furniture wax comes as paste or liquid. "Generally," says Ashby, "less solid forms apply easier but have less wax."

Liquid wax does have a place in the home, though. Advises Ashby, "For highly carved wood surfaces and the legs and stretchers of chairs, you can use liquid. Also, it works as the initial wax coat on cabinets, much like a sealer."

Applying paste wax isn't complicated, and the method doesn't differ for newly finished furniture or older furniture. All furniture to be waxed, though, must be clean and free of oil and grease.

## MAINTAINING FINISHES

Following the initial three coats, Ashby suggests you reapply wax according to the rate of "wear and tear" your furniture receives. "You might wax the arms of a dining chair weekly, but the legs and stretchers only every 18 months."

To maintain a wax coat on your furniture, follow Ashby's tips:

# PROTECTION FOR FURNITURE?

**At Colonial Williamsburg, conservator Leroy Graves waxes a mahogany chest of drawers dating to 1790. Experts say your household collection deserves the same treatment.**

"You can make only two mistakes applying wax," Ashby notes. "You can put too much on, and you can try to buff it out too soon." Too thick of a coat won't dry evenly, resulting in a spotty sheen. And, if you buff wax before it has dried, you just redistribute the wax.

Here are the most frequently asked questions and answers regarding the application of wax:

- *Do you have to apply wax with steel wool?* Ashby recommends an oil-free, wood finisher's 0000 steel wool (see where to buy at end of article) to avoid streaks and blurs. A cloth will do, although it takes more effort.
- *Does it matter how you spread the wax?* "No," says Ashby, "but, on large surfaces, such as a tabletop, I use a circular motion, then even it out with the grain."
- *How can you tell if you have applied the right amount of wax?* "If you see ridges across the surface, there's too much," he says.
- *Will one coat do?* "On a new piece or one not previously waxed, put down three light, successive coats at four- to eight-hour intervals."
- *What do you need for buffing?* Buff the dry wax with terry cloth, a cotton diaper, or an old T-shirt. "The higher the gloss you want, the softer the material for buffing you use," he says. "And, buffing with the grain or cross-grain doesn't matter."

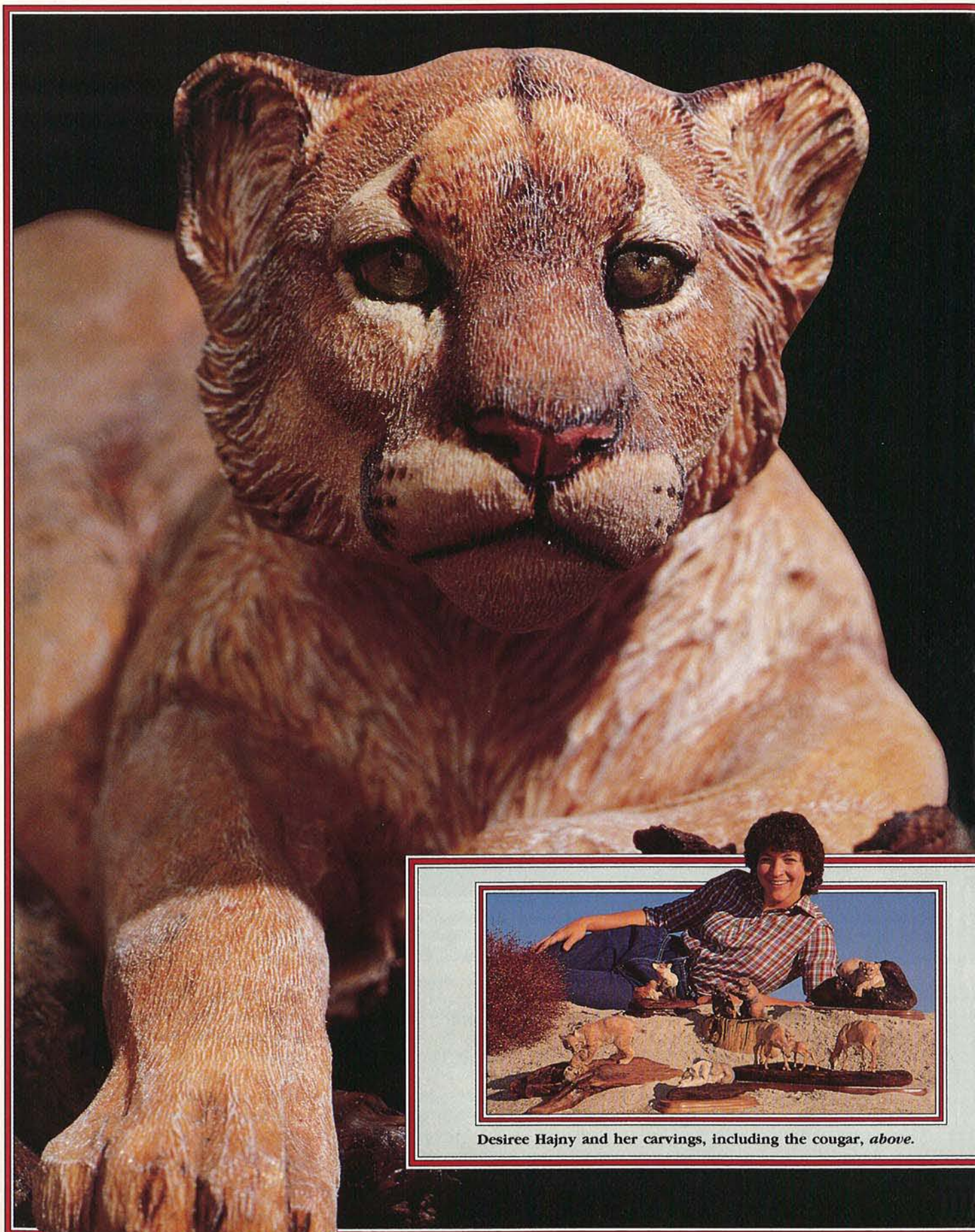
- Dust weekly with a soft, dry, all-cotton cloth.
- Don't use polishes or oils over your coat of protective wax.
- Wipe up spills as soon as possible to prevent spotting.
- Use coasters under glasses and vases, and pads or trivets under hot dishes.
- Reapply a coat of wax when you can no longer buff the coating to a shine.

"On the West Coast today, it costs between $650 and $1,000 to have a dining tabletop custom refinished. If you have just finished one yourself, that's how much it's worth," comments the waxing expert. "Wax can preserve that expensive finish."

**BUYING GUIDE**

- **Oil-free steel wool, Black Bison wax, wax remover.** Liberon Supplies, P.O. Box 86, Mendocino, CA 95460. Call 707/937-0375. Other waxes available from woodworking supply stores.

Written with Amy Elbert
Photograph courtesy of the Colonial Williamsburg Foundation, Williamsburg, Virginia





Desiree Hajny and her carvings, including the cougar, ***above.***

# Desiree CAME OUT OF THE WEST

Packing a dream and a talent for carving

Print this article

How Colorado-raised Desiree Hajny became a woodcarver might have been lifted from a paperback western: *"What ya' aim to teach, ma'am?" inquired the dusty cowpoke. "Art," replied the new school marm. "Not much call for that in these parts," he guffawed, then ambled on down the street. In cattle country, the young teacher had her work cut out. Rawboned cowboys, toughened ranchers, and others of sturdy stock had little regard for what they considered impractical.*

"But, it's true," Desiree laughs. Planting her hands in the back pockets of her denim jeans, she tells about her first year as a high school art teacher in Nebraska's sandhills cattle country. "They were ranch kids in Bassett [pop. 1,000], and boys and girls alike could dig a fence-post hole to beat the band."

Raising one hand to shake a finger, she continues. "Lots of the parents told their children, 'You'll never get anything useful from art.' As an art teacher, it *was* tough. I had a heck of a time, until I hit on carving to get them involved. Crimine, they all had pocketknives!"

Until that time, Desiree had never carved. Yet, as the students took to it, so did the teacher. And, drawing on images from her beloved Rocky Mountains, a champion eventually came out of the West.

**"You always return to what you love and remember best."**

## ROCKY MOUNTAIN REMEMBRANCES

In college, Desiree studied all aspects of art. It was cartooning, however, that really caught her interest. "I drew cartoon figures all the time," she remembers, "and when I began carving, cartooning surfaced."

Why the switch to wildlife? Desiree explains, "Because I grew up in the Colorado Rockies, surrounded by nature's animals. My brothers and I even raised a mule deer fawn we called 'Baby Doe.' It seems you always return to what you love and remember best."

Many of Desiree's pieces reflect a strong feeling of family and togetherness, part of her mountain remembrances. "We had such a close family. My father always said, 'We got to stick together like a covey of quail.' And, my brothers and I would say, 'What's a covey?' Then, he'd describe how quail watch out for each other and tell us to do the same."

Images from those fondly remembered family years consistently show up in her carvings. A bobcat mother carefully mouths her kitten for transport. A doe, ears and eyes alert, cuddles her fawn. *Continued*

Desiree Hajny, *left*, shows some of her detailed wildlife carvings that have captured the hearts of the public and the eyes of judges from Anchorage to Kansas City and Toronto. Note the reclining cougar resting by Desiree's left elbow. That's the same carving we've blown up to five times actual size in the photograph on the opposite page.

In the nine years since she tackled her first carving, Desiree, 32, has turned a dream shared by many carvers into reality. She piles up blue ribbons, galleries demand her work, and commissions from collectors take her a year to fulfill. She's so busy, she couldn't possibly be happier.

Husband Bernie, 30, a special education teacher, inspires and encourages her. Son Jeff, 4, the driving reason Desiree began carving full-time at home, benefits from her companionship. And, Desiree thrives. "I love doing things that people enjoy, and it's fun to see how much better I can get year to year, and competition to competition."

What makes Desiree's work so popular? It's not only realtisic, but candid. In her home workshop in Columbus, Nebraska, we discovered why—and how—Desiree imagines, then records in wood what most people expect only from the most expert wildlife photographers.

Ears and eyes alert, a doe guards her resting fawn against forest predators, man and beast.

"I always carve the head first, because that's how I look at an animal," says Desiree. Note her backhand style.

Sleeping instead of howling under a full moon, Desiree's lone wolf hardly appears as dangerous or menacing as its reputation.

# Desiree CAME OUT OF THE WEST

True to life in their carefully painted pelts, her animals halt in unexpected poses, more like house pets than beasts of the wild. Desiree enjoys watching people react to her carvings. "At a show, a man and woman will stop, look, then look again. Pretty soon, the woman will giggle or laugh. 'Hey, George, look at this!' she'll say. I like doing poses that catch your eye."

Her penchant for cartooning hasn't been neglected. "With the lion and bobcat kittens, I make the feet a little bit bigger, exaggerate them," she says. "Then, people get the impression of playful little fur balls."

## BLUE RIBBONS BY MAIL

"When we moved to Columbus in 1986, Bernie and I decided to enter my animals in carving competitions," says Desiree. "At the worst, I thought I could always learn something from losing."

That year, Desiree's work only went to competitions where attendance wasn't required. And the ribbons started coming in. The initial one, a third place in a wildlife art show, arrived from Dubois, Wyoming. "We sent two other pieces, but they broke in shipping. We learned how to pack better after that," she laughs. Encouraged, Desiree entered the Alaskan Fur Rendezvous, and earned a division championship. From the 10th Canadian International Woodcarving Exhibition in Toronto came a first and second place. Since, Desiree has won top honors in Iowa, Kansas, Missouri, Oklahoma, Minnesota, and again in Alaska and Canada.

"Things just started clicking. The more shows we entered, the more success we had, the more contacts we made, and the greater the sales," she bubbles. "Now, people are asking us to be at their shows—something you dream about, but never believe will happen."

## PRETEND YOU'RE A MOOSE IN THE WILD

According to Desiree, it takes research to carve lifelike animals. Besides drawing from her own memories, she subscribes to a nature book club and *Ranger Rick* magazine, and spends a lot of time watching productions on cable television's Discovery channel. "I also pose in the positions I carve my animals in. Really!" she grins, kicking a foot to the top of an imaginery rock.

"I took a physiology class to study animal bones and muscles. I wanted to see what does what and why it does it." An infectious smile breaks her lips. "I'll bet you didn't know that a moose's knee is here," she says, indicating her hip.

Desiree's three-dimensional carving requires a lot more attention to detail than relief carving, or even painting. "You have to pay more attention to such things as the back leg and the feet," she says. "Animal artists, particularly painters, are famous for covering the feet. They hide them in the grass, or rocks, or snow. I can't do that. Besides," she notes, "for some reason, a woman gets critiqued more than a man. So, I'm more careful with details."

Prolific as well as talented, Desiree produces more than 50 carvings a year. She never tires of it.

"That's because I go through phases. I'll do cats for awhile, and do as many as I can. Once I'm out of the phase, no matter how hard I try, cats won't look right." Cocking her head and wrinkling her nose, she explains, "Cats have so many expressions. When a cat looks directly at you, it can be love at first sight. Or, you don't like them."

## CARVING FACE TO FACE

Most figure carvers delay detailing the face until they carve the body. Desiree reverses that technique. First, she draws the face on the blank, in detail. Next, she draws the lines where the backbone, chest, feet, and other body parts

will be. Then, instead of completely roughing out the animal, she focuses on the head. "That's how I look at a person or an animal—the face first, then the body," she comments. "So, I start with the head and face. If I like it, I finish the body. If I don't, I put it away to redo later."

Because Desiree starts with the face, there's always a lot of wood left to remove before she can even begin to see a body in the roughout. Yet, as with most things she does, she has a reason. "I do use an awfully big chunk for a rough, but that allows for the body to curve and contour. If I want to curl the tail, I've got the wood to do it. I use the whole piece."

Desiree chips away with an Auto-Mach power carver to get the wood to the point where she can work with a knife and gouges—work that she does, strange enough, backhand (see photo at *left*). After the detailing with those tools, she prepares the carvings for woodburning by sanding. "I sand, because I want them real smooth to emphasize the burns," she notes.

## DECORATING THE PETTING ZOO

Desiree says that she often uses jelutong wood for some of her pieces, and for quite an unexpected reason. "People actually pet many of my carvings. When they do, their fingers can rub off any burned-in texture on basswood. Jelutong holds up better to the touch."

In the evenings, when Bernie needs to unwind from his teaching job, he helps Desiree burn in the hair texture on her animals. "I do all the burning on the faces and mark the areas on the body for him to follow. Then, we sit around together in the living room or at the dining table, talking and working on the carvings," she says.

Unlike the array of paint tubes that decoy and bird carvers rely on, Desiree reaches for a shoe box filled with tiny bottles. "Those little bottles are acrylics, but for tole painters. They're already dull, and they're less expensive than name-brand tube colors." Desiree uses *Apple Barrel, Cream Cote*, and *Folk Art* brands, priced at 88 cents to $1.75 per 6 oz. bottle.

To let the wood show, Desiree brushes on thinned acrylics, building up color with a wet-on-wet technique. "When the paint dries, I apply highlights of color by dry-brushing [dabbing with unthinned paint on a dry brush]," she explains. "Then, I put on a coat of tung oil."

## TAKING AIM ON THE FUTURE

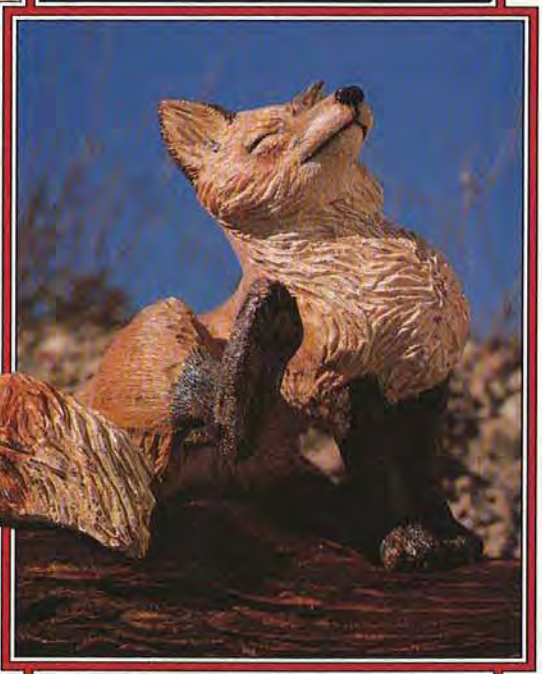
Hundreds of pushpins decorate a U.S. map on Desiree and Bernie's den wall. They represent sales from the Rockies to New York.

For instance, singer Barbara Mandrel bought two carvings. An arrow points to China—a Chinese official has one. Several arrows indicate owners of Desiree's carvings in England, West Germany, and other European countries.

Will Desiree keep up the pace? Seriously, she says, "Carving never gets old. One reason is all the things I still want to carve; another, I challenge myself."

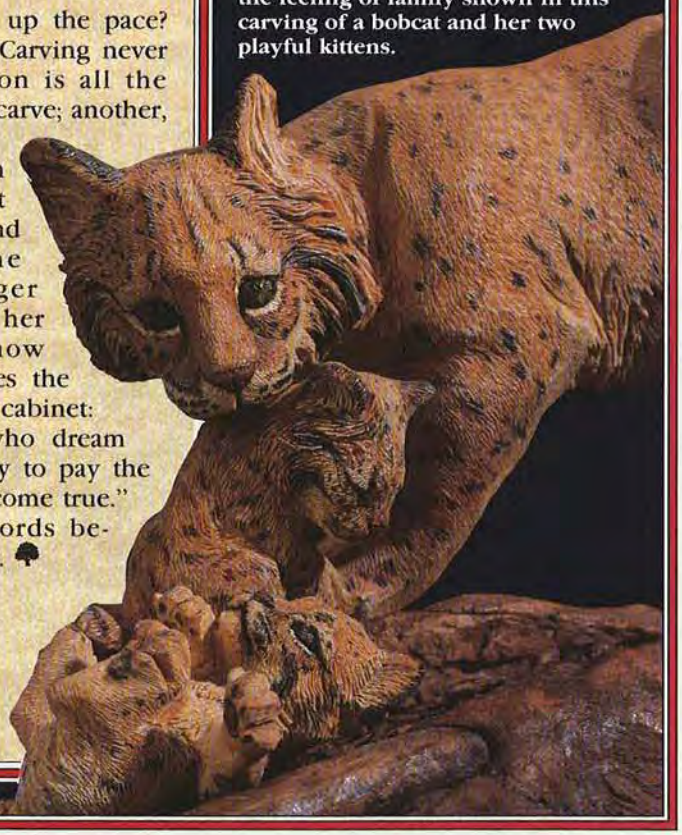
Back in 1986 when Desiree took her last look at a classroom and became a full-time carver, her younger brothers presented her with a poster. It now prominently decorates the door of a workshop cabinet: "Happy are those who dream dreams and are ready to pay the price to make them come true." For Desiree, the words become ones to live by.

Written by:
Peter Stephano
Photographs:
Hopkins Associates
Graphic design:
Perry McFarlin



**Hardly cunning when caught up in a scratch, this red fox may remind you of a favorite pet.**

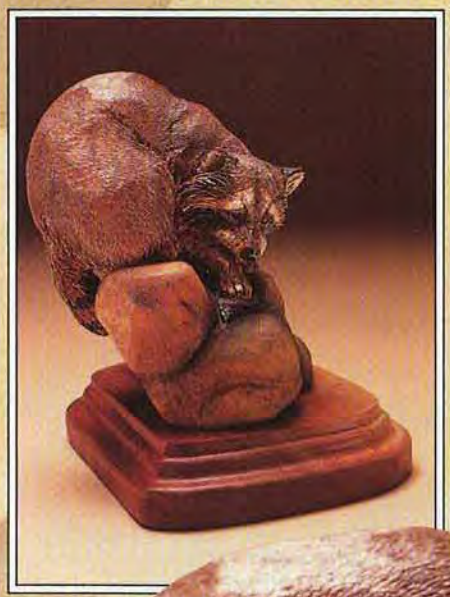
**Wildlife photographers rarely capture the feeling of family shown in this carving of a bobcat and her two playful kittens.**



Print this article

# CARVE A DESIREE HAJNY WILDLIFE ORIGINAL ROSCOE THE RACCOON

**Start from scratch, or send for our 70-percent complete, crafting this cautious little creature. And, with every order,**



To make it as easy as possible for you to carve your own Roscoe the Raccoon, Desiree helped us develop this special, four-page article of step-by-step instructions. The drawings, photos, and painting guide lead you through the detailing process as if you were enrolled in one of Desiree's carving classes. And, with our 70-percent complete, precarved rough-out (see box on page 63), even novices will be successful.

## STEP 1: ROSCOE THE RACCOON SHAPES UP

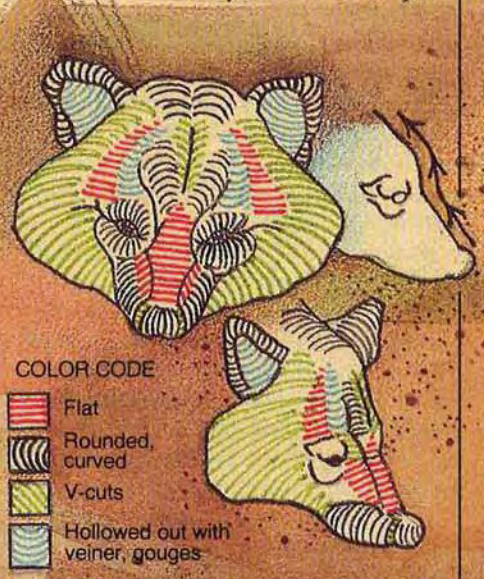
If you ordered the roughed-out carving, jump ahead to "Carving a face for Roscoe," below. Otherwise, trace the full-sized pattern onto a 2½ × 3¾ × 5″ piece of basswood or jelutong. Then, bandsaw the block to shape.

Begin carving by removing the excess wood until your rough has the curves and contours shown in the full-body views, *right*. "Be sure to leave about ½″ of excess wood around the face," Desiree advises, "so you'll have plenty of area to work in all the angles and planes with small gouges and a knife."

## STEP 2: CARVING A FACE FOR ROSCOE

"The face is critical," Desiree says. "From the side, the muzzle is a triangle; the nose, an upside-down heart with the point removed."

From the nose to a stop cut between the eyes, carve a flat, narrow bridge. Then, widen it up to the forehead. For an eye, cut a V-shape at the bridge for the upper lid and tear duct. Under it, make an inverted V-cut to start the lower lid. Outline the eye with curving stop cuts, then round the eyeballs. Fan the mask out for the ruffs of fur that extend behind and below the ears. For contour, see drawings *above*.



**Roscoe's unpainted face shows carved-in detail to imitate.**

**precarved rough-out so you can concentrate on detail. Either way, we know you'll enjoy you'll support the National Wildlife Federation's Backyard Wildlife Habitat Program.**

### STEP 3: GIVE YOUR RACCOON A FUR COAT

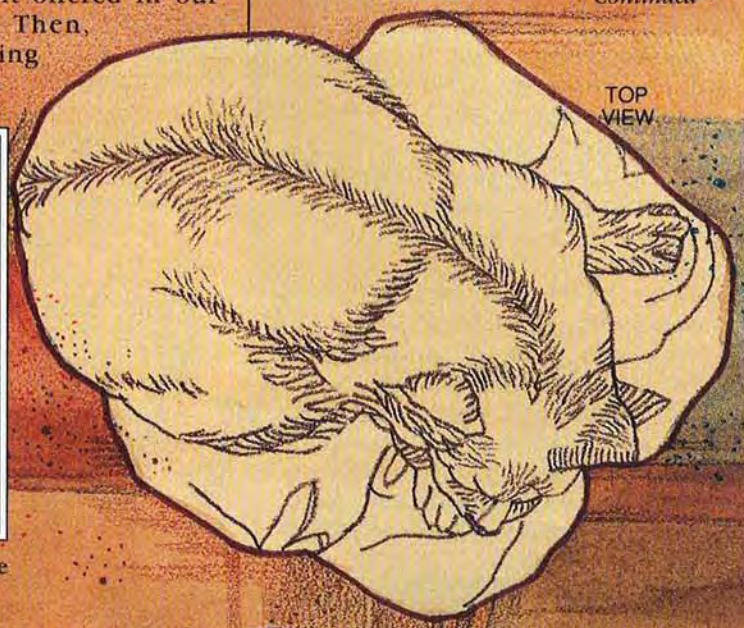
For the deep, narrow cuts that represent the heavier fur on the raccoon's rump, tail, legs, and ruffs, Desiree uses a ⅛"-wide parting tool (V-tool), as shown in the photo, *below left*. For the finer body hair that completely covers the back, thighs, head, face, and feet, she relies on an electric woodburning tool with interchangeable tips. You can simulate hair by stippling paint—short strokes applied with a No. 1 or smaller fine-tipped brush-(see photo, page 62). Or, order the woodburning kit offered in our Buying Guide. Then, sand your carving smooth before burning-in the fur. If you paint the fur on, first seal the wood with tung oil or spray lacquer so the paint won't soak in.

Regarding woodburning, Desiree says, "Make small marks in layers,

*Continued*

A V-tool carves the lines that represent heavy fur.

Sear the nose and eyes with the side of a hot woodburning tip.




**FULL-SIZED PATTERNS**

Raccoons are kind of like cats, their faces telegraph lots of moods. Raccoons also get into lots of mischief. This little fella, I nicknamed Roscoe, could be contemplating your garbage can!
Desiree Hajny
BACK VIEW

(as shown in the drawing, *next page*). Use a fluid motion, and avoid putting in too many straight lines. Remember, gravity bends hair into a slight arc."

Hair flows around an animal's body in tracts, following its contours. To see the direction of these tracts on a raccoon, study the detailed drawings, *right*. Use them as reference for your burned-in or painted-on hair marks.

To obtain shiny eyes and a nose on your carving, here's a tip from Desiree's workshop. "Sear the wood of the eyes and nose with the side of a hot woodburning tip," she says. "This seals the wood as it darkens it. When you put on the coat of tung oil after painting, the seared areas won't absorb it, and they'll glisten." (Varnish over flat paint works, too.) Her technique, shown on page 61, works so well that at carving competitions, other carvers have accused Desiree of putting glass eyes in her animals!

You can paint hair on with short brush strokes.

### STEP 4: PAINT BRINGS ROSCOE TO LIFE

After completing all burning, you're ready to begin Roscoe's paint job. Desiree paints only with acrylics, but oil will work just as well. "Whatever type of paint you choose, though," advises Desiree, "keep it thinned so the pigment doesn't clog up burn marks or carving details. To build color, use several thin coats rather than one thick one. You want to let some of the natural wood color show through."

Desiree suggests that you follow this painting procedure: Apply light colors, then dark ones. That means that you'll want to paint all white areas first. Next, paint the brown-gray areas. Then, add black. Refer to the color keys, *next page*, to guide you as you paint.

After the paint has completely dried, you can begin the dry-brushing of the brown-gray areas with white mixed with tan. This adds realism to the fur. And, if you have never tried dry-brushing before, think of it as "painting with the bristles." That is, keep the paint and your brush dry enough that it doesn't flow onto your carving in a coat. Instead, the bristles of your brush leave behind only hints of color. Practice on paper first.

For the rock base Roscoe perches on, mix the colors you have used already. Create various shades by applying the paint in thin coats and adding darker colors in the crevices. After your painted carving dries, add a coat of tung oil.

## COLORS FOR ROSCOE THE RACCOON

***Eyes and nose***—black, white underlining eyeballs.
***Mask and outside of ears***—black mixed with a touch of brown.
***Bridge of muzzle upward to forehead***—brown to black to tan.
***Spots on muzzle***—black or brown.
***Muzzle, area above eyes, and inside of ears***—white mixed with just a touch of tan or brown.
***Body***—brown mixed with gray, dry-brushed on top with an off-white for accent.
***Front paws***—dark brown/gray with black claws.
***Back paws***—light gray to dark gray with black claws.
***Tail***—brown/gray with three black stripes and black tip.
***Boulders and rocks***—gray/black to light gray, darker accents in crevices (mix up leftover raccoon body colors). Suggest moss or vegetation with dabs of green.

Fur marks are layered

## ORDER A ROSCOE THE RACCOON ROUGH-OUT

Our 2½×3¾x5" precarved, basswood rough-out already looks like a raccoon. For every rough-out you buy, *WOOD®* magazine will earmark $1 for the National Wildlife Federation's Backyard Wildlife Habitat Program (not applicable with orders from Calif., Conn., Fla., N.H., and N.Y.).

***To order:*** *Send a check or money order for $8 for one, $15 for two (all include postage), payable to:*

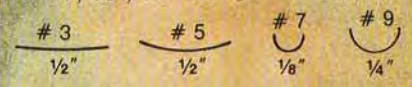
**WOOD® Magazine**
**ROSCOE THE RACCOON**
**Locust at 17th St.**
**Des Moines, IA 50336**

*Please allow 4–6 weeks for delivery.*
**Offer expires November 1, 1989.**

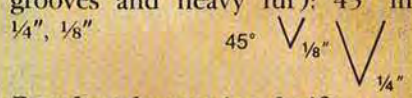
## TOOLS AND MATERIALS

For carving Roscoe, Desiree used the gouge and V-tool sizes and shapes shown below. Similar ones are available from the Warren Tool Co. (address below) or other carving-tool suppliers.

***Gouges*** (general wood removal, shaping): ½" No. 3, ½" No. 5, ⅛" No. 7, ⅛", ¼" No. 9




***Parting, or V-tools*** (deep grooves and heavy fur): 45° in ¼", ⅛"



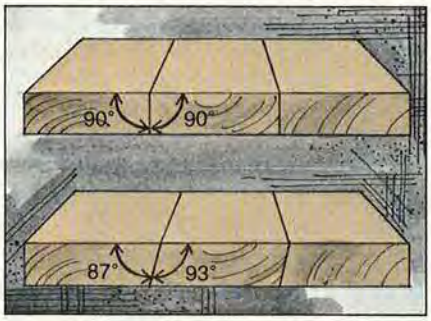

***Bench-style carving knife*** (general wood removal, stop cuts, fine lines, hair)
***Wood:*** 2½×3¾×5" basswood or jelutong (or precarved rough-out)
***Paint*** (acrylic or oil): white, black, brown, tan, gray
***Clear finish***: Tung oil
***Sable or camel hair brushes***: sizes 00, 0, 1, 3. Paint and brushes available from art or hobby supply stores
***Woodburner*** (for fur)
***Woodburning tips:*** spade, needle

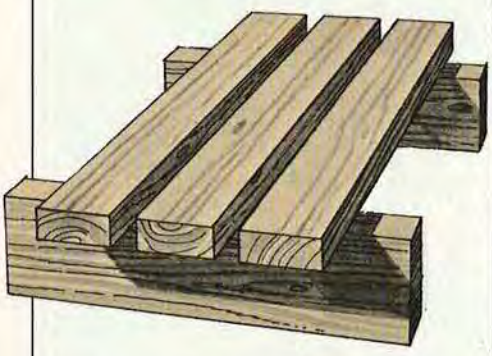
**Want to try woodburning Roscoe without investing a bundle?** Send a check or money order for $27.50 (includes postage) to *Warren Tool Co., Inc., Rte. 1, Box 14A, Dept. WD, Rhinebeck, NY 12572* and you'll receive a special Hot Tool Woodburning Kit that includes an electric burner with wooden handle, a standard tip, and a needle tip for fur. About this tool, Desiree says that many of her carving students have used it successfully. "For darker fur areas, burn lines close together. For lighter areas, spread lines farther apart," she advises. You'll also receive a carving tool catalog (regular price, $1). The burning tool carries a full guarantee.

Photographs: Jim Kascoutas
Illustrations: Jim Stevenson
Design, how-to notes: Desiree Hajny
Graphic design: C. L. Gatzke

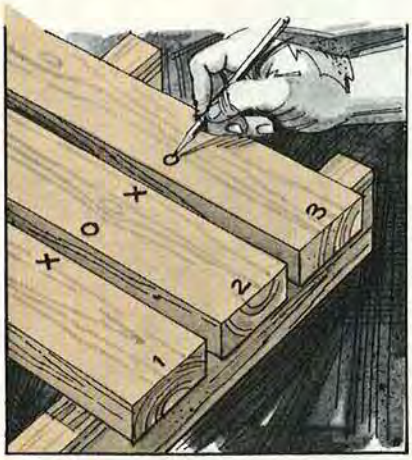
# EDGE-JOINING
## THE CAN'T-MISS WAY

**If the world were perfect, you could set your jointer or tablesaw for precisely 90° and end up with flawless butt joints every time as shown in drawing A. Because nothing's perfect, here's a way to set your equipment for about 90° and still cut edges that match exactly as shown in B.**



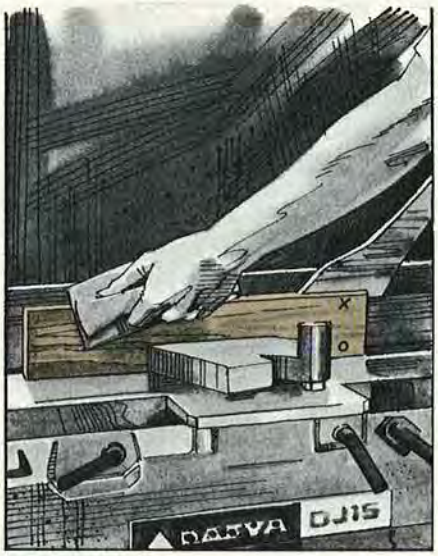



1 Working with nonwarped boards of uniform thickness, place them across a pair of 2×4s so they lie flat and elevated. Then, arrange the boards so that the curvature of their growth rings alternates as shown *above.* This procedure increases the dimensional stability of the glue-up, making it less prone to warping. Now, shuffle the boards around to achieve the best color and grain match, but be careful to maintain the alternating growth-ring pattern for at least 80 percent of the boards.




2 Next, number the boards with a pencil so they stay in proper sequence, and mark alternating Xs and Os along the joint lines on the face sides of the boards as shown *above.* Whether you're using a tablesaw or a jointer to cut the mating edges, these Xs and Os will tell you how to position the boards for ripping and gluing later.

3 If you're cutting the edges with a tablesaw, always place the boards faceup when you trim the O edge as shown *below.* Then, rip the X edge by flipping the board over (face side down with the same end of the board toward you) and ripping it again.




4 This procedure works equally well with a jointer. First, position the board face side out against the fence and pass the O edge through the jointer as shown *above.* Now, place the X edge on the jointer table with the face side (X and O) against the fence and joint that edge. Repeat for the other boards.

Illustrations: Jim Stevenson

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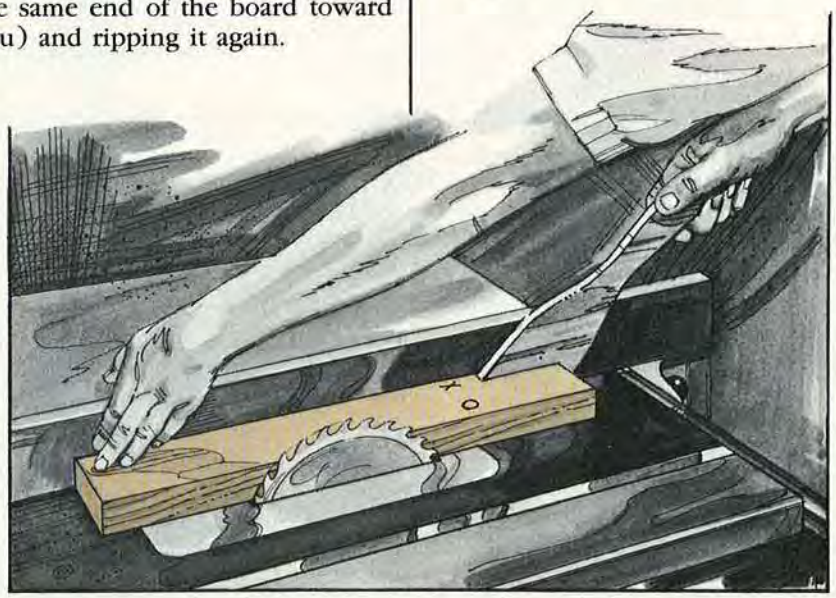
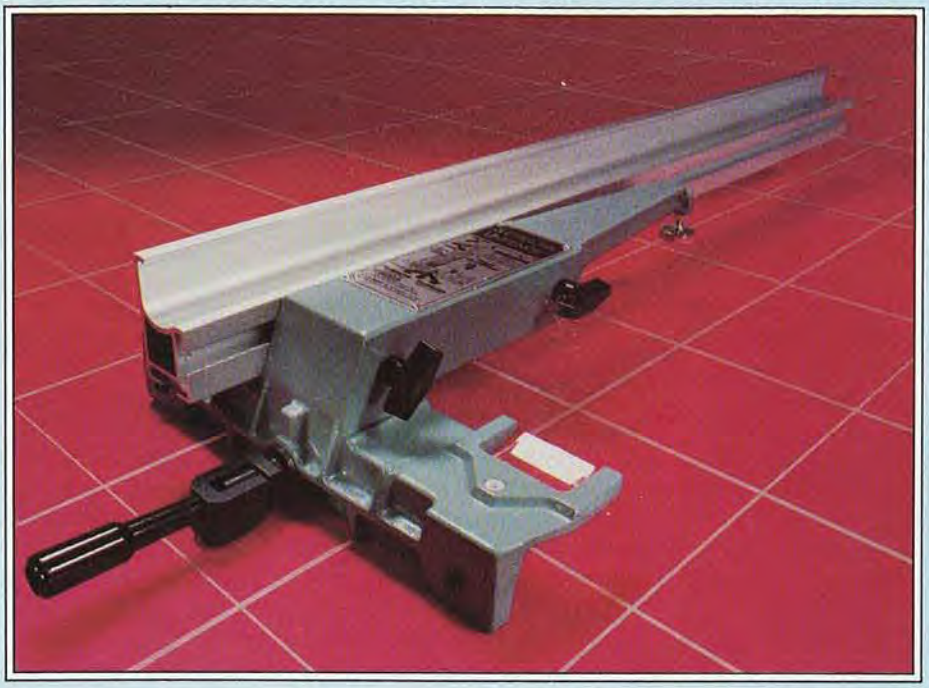


# PACK NEW PRECISION INTO YOUR TABLESAW



# REPLACEMENT RIP FENCES

Print this article

**Put away that tape measure! Why? Because in the second or so it takes to extend the tape, you can accurately set an aftermarket rip fence. The catch? You'll spend from $219 to more than $400 for this upgrade that many of your fellow woodworkers swear by.**

Before you buy an accessory that may cost more than your tablesaw, you deserve to know how these fences can help you. Besides being fast and accurate, an aftermarket fence stays parallel to the blade through heavy use and locks securely when you make a cut. The payoff: You work safer and save money in stock not wasted from bad cuts.

Here's another big advantage, especially if you cut large panels: more cutting capacity to the left or right of the saw blade. Because each of the fences we tried extends at least 50″ to one side of the blade, you'll need to add an extension table off the side of your saw (some models extend only 28″). Remember this fact if you're operating in a small shop.

## FIRST WITH A FENCE: BILL BIESEMEYER

After working in cabinet shops for 35 years, Bill Biesemeyer of Phoenix "became so disgusted with available tablesaw fences that I finally built my own," as he puts it. The year was 1962, and Biesemeyer improved his fence until he patented the first commercially available replacement tablesaw fence in 1977. In the following two years, "I went on selling trips and sold, built, and installed 250 fences," Biesemeyer said. During 1984 and 1985, his firm made *Inc.* magazine's list of the 500 fastest-growing private companies in the U.S.

Biesemeyer's success didn't go unnoticed by other manufacturers—today four competing firms offer models similar in function but different in design.

*Continued*

# REPLACEMENT RIP FENCES

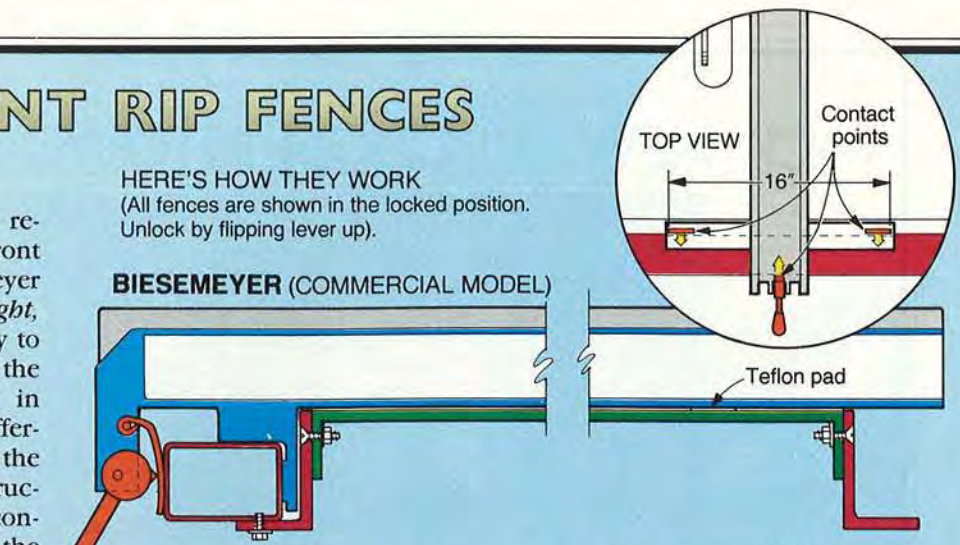
## THE INSIDE STORY: HOW THEY WORK

Like standard fences, all of the replacement fences ride along a front rail. Some, such as the Biesemeyer commercial model shown at *right,* include a rear rail to add rigidity to an extension table or support the fence on that end. As shown in these illustrations, the real differences among these fences lie in the locking mechanisms, rail construction, and configuration of the contact points where they lock to the rails. Here's a quick rundown:

**Color code:**
Orange: locking mechanism
Gray: fence
Blue: fencehead
Red: rails
Green: saw table
Yellow arrows: direction of pull when fence secured

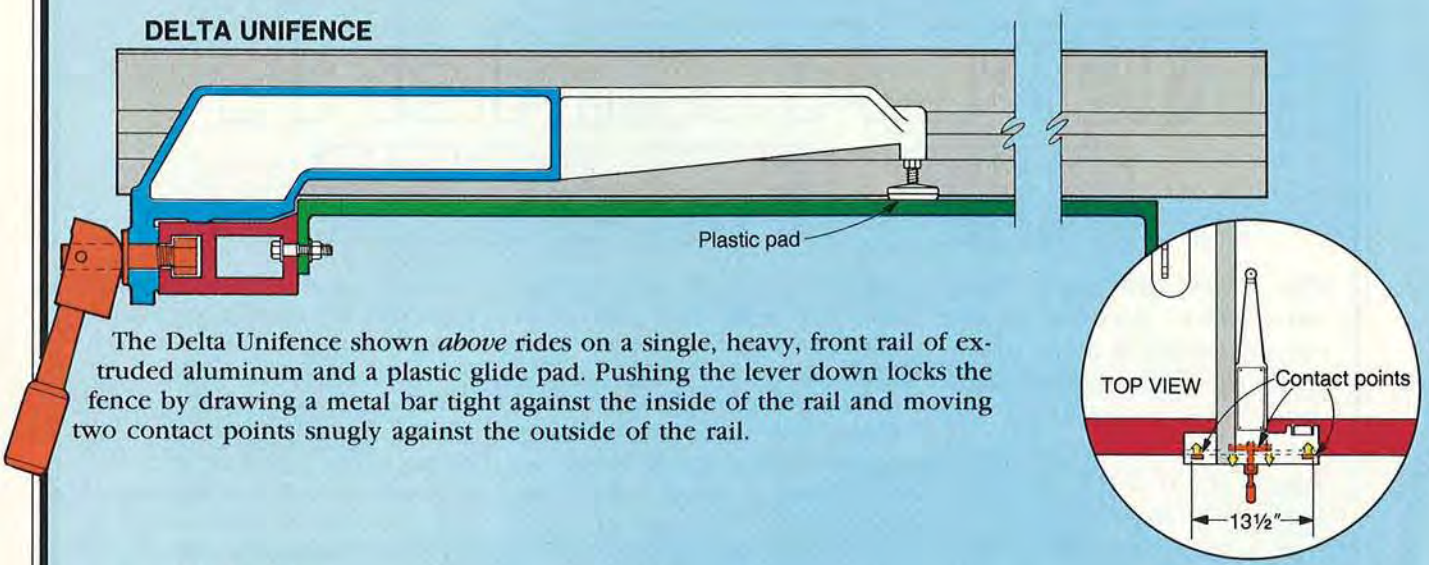
HERE'S HOW THEY WORK
(All fences are shown in the locked position. Unlock by flipping lever up).

### BIESEMEYER (COMMERCIAL MODEL)



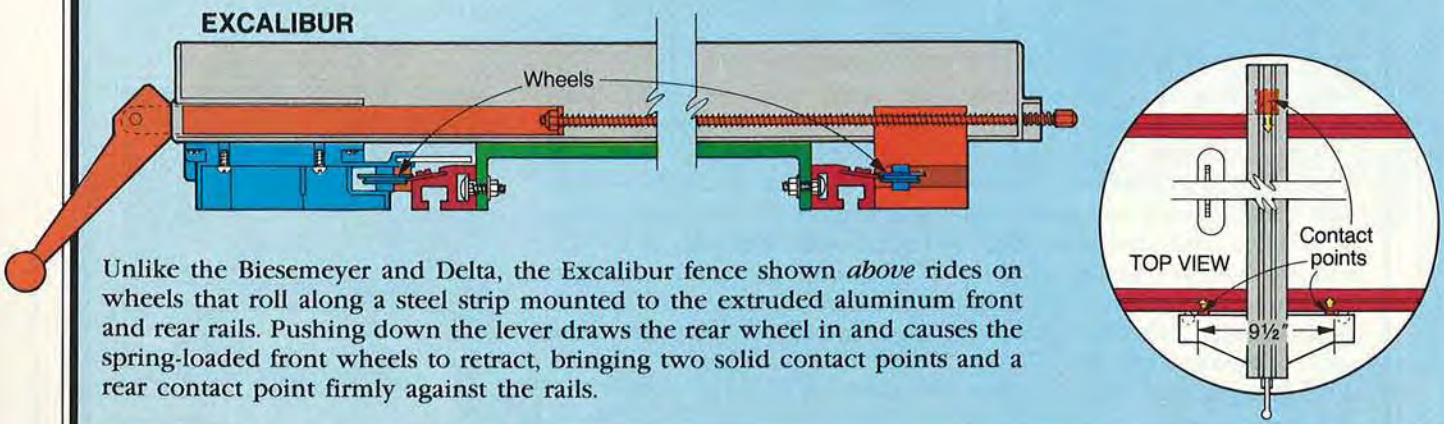

As shown *above,* the Biesemeyer commercial model rides along a front-end rail of square, tubular steel, with Teflon glide pads on the front and rear of the fence. The simple locking mechanism consists of a cam-action lever that you push down to bring two contact points against the front rail. A 16"-spread between the ends of the contact points (widest of all the fences) minimizes the chances of alignment error in the fence. Biesemeyer's home-shop version duplicates the commercial fence, but in a scaled-down model (see chart on page 69 for specifics).

### DELTA UNIFENCE

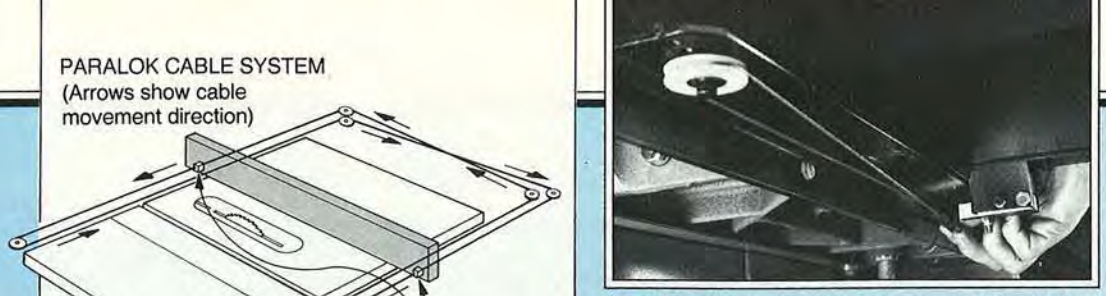



The Delta Unifence shown *above* rides on a single, heavy, front rail of extruded aluminum and a plastic glide pad. Pushing the lever down locks the fence by drawing a metal bar tight against the inside of the rail and moving two contact points snugly against the outside of the rail.

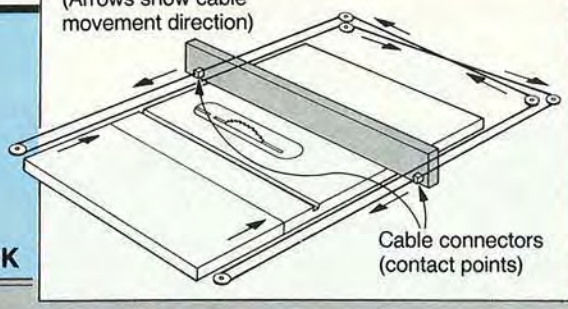
### EXCALIBUR

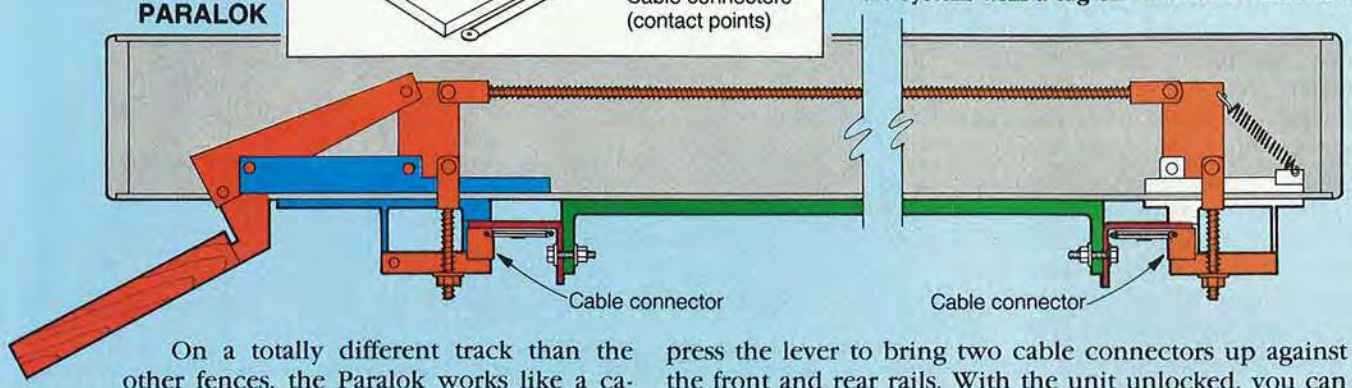



Unlike the Biesemeyer and Delta, the Excalibur fence shown *above* rides on wheels that roll along a steel strip mounted to the extruded aluminum front and rear rails. Pushing down the lever draws the rear wheel in and causes the spring-loaded front wheels to retract, bringing two solid contact points and a rear contact point firmly against the rails.

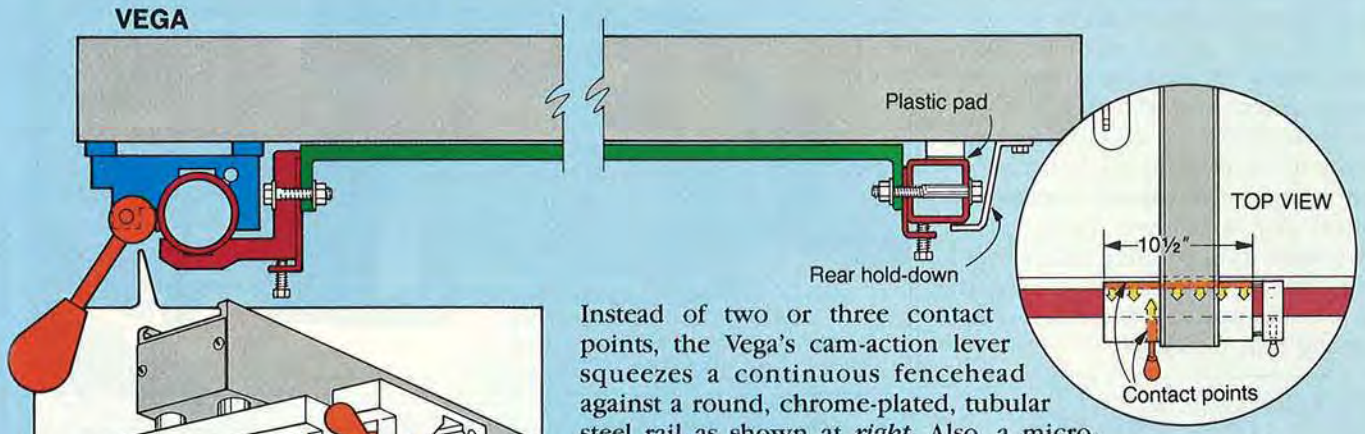


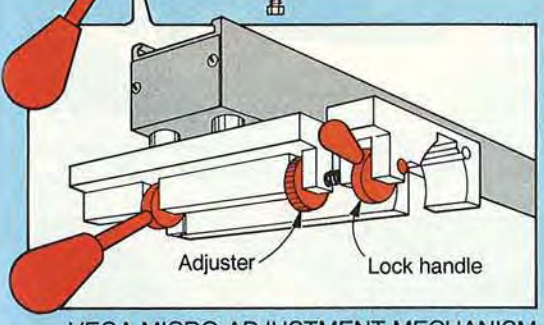
The Paralok fence quickly releases from its cable system with a tug on its cable connectors.




On a totally different track than the other fences, the Paralok works like a cable-rigged drafting table as shown *above*. The fence attaches to a continuous cable, slides along front and rear rails and locks in place when you depress the lever to bring two cable connectors up against the front and rear rails. With the unit unlocked, you can disconnect the fence from the cable by pulling the cable connectors away from the fence as shown *above*. You remove the Paralok by sliding the fence off the rails.




VEGA MICRO-ADJUSTMENT MECHANISM

Instead of two or three contact points, the Vega's cam-action lever squeezes a continuous fencehead against a round, chrome-plated, tubular steel rail as shown at *right*. Also, a micro-adjustment mechanism with its own cam-action lever allows you to precisely position the fence as shown at *left*. A plastic glide pad rides along the rear rail to hold the fence off the table.

## INSTALLATION: SOME EASIER THAN OTHERS

We found the Vega the easiest to install because it arrives with bolts that fit the existing holes in your tablesaw (if you own a Delta Unisaw or contractors saw, Powermatic model 66, or most Sears 10" saws). Otherwise, you'll have to drill two or four holes. Even if you're not mechanically inclined, you'll find the Vega, Biesemeyer, and Delta fences a snap to install on nearly any tablesaw.

You shouldn't have any problem installing the Excalibur if you follow its instructions closely, but this fence does require a perfectly flush and flat mounting surface for the front rail. Why? The aluminum Excalibur rail will bend when you lock the fence in place if there's distortion along that surface. Common distortions: burrs on the saw table or misalignment between the saw table and extension table.

Installing the Paralok challenged us a great deal. The cable system assembles relatively easily, but we were stumped by its poorly written and illustrated instruction book. Darryl Waters of Quintec Mfg. (makers of Paralok) said his firm recognizes the problem, and he sent us a preliminary copy of a new instruction booklet to back up his point. We found the new book considerably easier to understand.

*Continued*

# REPLACEMENT RIP FENCES

## DESIGN AND MATERIALS: WHAT TO LOOK FOR

Since all of the fence systems do basically the same thing, it pays to consider their design and materials. With the exception of the Biesemeyer, all the manufacturers use light, high-quality, extruded aluminum for the fences. We found Biesemeyer's 28-pound steel fence to be sturdy, but cumbersome.

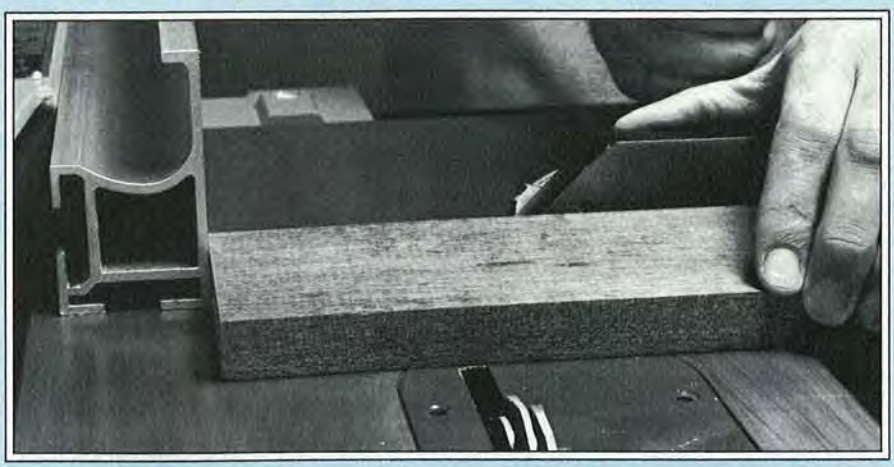
However, Biesemeyer continues its all-steel construction where it really helps—the rails. The steel adds strength, rigidity, and durability to this component. The Vega and Paralok also have steel rails. Only one system—the Delta Unifence—has no rear rail. If you purchase the Delta system, you might want to consider adding an angle iron to the rear of the tablesaw to sturdily hold the extension table.

Delta does all the manufacturers one better by making a two-part fence system that allows the fence to slide forward and backward along the fencehead. By pulling the fence back, you can use it as a safe cutoff stop as shown *above right*. You also can remove the fence from the fencehead and reinsert it so it works as a low fence for safely cutting thin materials.

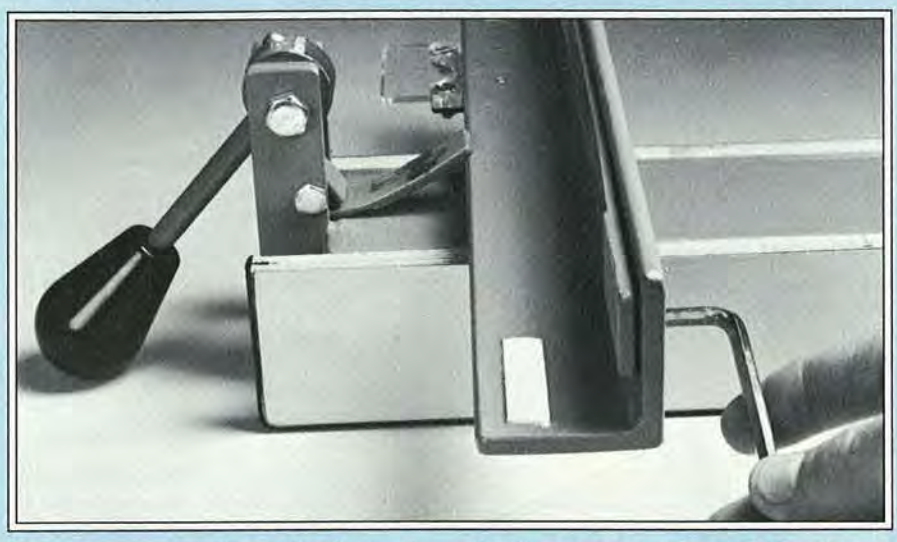
## WE LIKE QUICK, ACCURATE ADJUSTMENTS

You can align both the Delta and Biesemeyer parallel to the miter-gauge slot by simply turning two setscrews as shown on the Biesemeyer *middle right*. You can do this on the Delta without even removing it from the saw. However, the Vega requires you to first remove the laminate cover over the top of the fence, loosen four cap screws as shown *below right*, move the fence to parallel, and then reverse these steps. Whew!

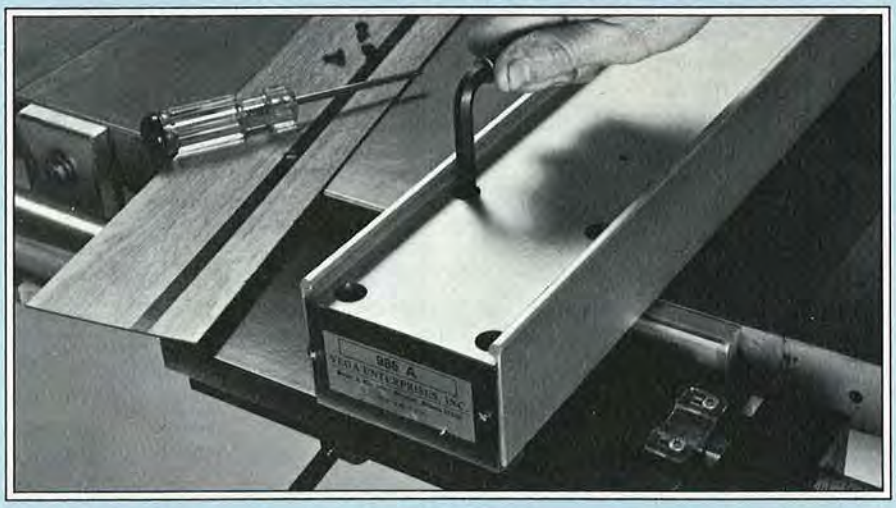
Although you'll only occasionally check and adjust the fence parallel to the blade, you'll be adjusting the fence for different rip widths all the time. Thanks to its wheels, the Excalibur gets a top grade for its effortless glide up and down the rails.



**The Delta Unifence slides backward and forward along the fencehead, allowing you to use the fence as a stop block for fast, accurate, and safe crosscuts.**



**Two setscrews on either side of a sturdy angle iron allow you to speedily adjust the Biesemeyer so it's parallel to the miter gauge slot and the saw blade.**



**To adjust the Vega, you need to remove three screws, then slide away its laminate cover, and turn four cap screws with a special tool.**

## STILL RIDING THE FENCE? CHECK THESE STATS

| Manufacturer | Model | Capacity | | Materials | | Fence length (inches) | Fence height (inches) | Custom sizes available (Y,N) | Micro-adjustment (Y,N) | Available accessories[2] | Country of origin | Weight of system (pounds) | Weight of fence only (pounds) | Price[3] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left (inches) | Right (inches) | Rails[1] | Fence[1] | | | | | | | | | |
| **Biesemeyer** (Commercial) | 26–122* | 0–48 | 26–122 | S | S, C | 42, 48 | 2½ | Y | N | BT, XT | USA | 66–145 | 28 | $279–583 |
| **Biesemeyer** (Home shop) | 28, 40, 52 | 0–24 | 28, 40, 52 | S | S, C | 36 | 2 | Y | N | XT | USA | 45–65 | 20 | 219–284 |
| **Delta** | Unifence | 8¾ | 51, 96 | A | A | 43 | ½–3½ | N | N | CO, XT | USA | 70 | 6¾ | 465–719 |
| **Excalibur** | T-Slot | ** | ** | A, S | A | 45 | 2½ | Y | N | AK, RF, RK, SP, XT | Canada | 50 | 20 | 369 |
| **Quintec Mfg.** | Paralok | *** | *** | S | A | 47¾ | 4 | Y | N | C | USA | 34–60 | 15 | 330–390 |
| **Vega** | 40, 50 | 7 | 40, 50 | S | A | 42, 50 | 2½ | N | Y | AK, CO, LH, SP | USA | 60, 67 | 9, 11 | 232–252 |

*Biesemeyer model nos. refer to cutting capacity to right of sawblade. Nine capacities from 26" to 122" available in 12" increments.

**Fence travels a maximum of 78". You can position as much or as little of this travel on either side of blade.

***Fence travels a minimum of 28" or maximum of 96", depending on length of rail. You can position as much or as little of this travel on either side of blade.

1. (A) Aluminum; (S) Steel; (C) Coated particleboard (facing on side of fence)
2. (AK) Anti-kickback device; (BT) Back table; (C) Various cursors; (CO) Cutoff fence; (LH) Laminate hold-down; (RF) Router fence; (RK) Router-mounting kit; (SP) Stock pusher; (XT) Extension table
3. Actual selling prices except for Delta. Delta list prices may be discounted 10-30 percent

**MANUFACTURERS LISTING**

Biesemeyer
216 S. Alma Road, Suite 3
Mesa, AZ 85202
Outside AZ: 800-782-1831
AZ residents: 602/835-9300

Delta International Machinery Corp.
246 Alpha Drive
Pittsburgh, PA 15238
Outside PA: 800-438-2486
PA residents: 800-438-2487

Excalibur Machine & Tool Co.
3241 Kennedy Rd., #7
Scarborough, Ont. M1V2J9, Canada
Calls from U.S.: 800-387-9789
Canadian residents: 416/291-8190

Quintec Mfg. (Paralok)
5128 N.E. 42nd Ave.
Portland, OR 97218
Outside OR: 800-423-9611
OR residents: 503/281-6096

Vega Enterprises Inc.
Route 3, P.O. Box 193
Decatur, IL 62526
Outside IL: 800-222-8342
IL residents: 217/963-2232

### WHICH ONE SHOULD YOU BUY?

Among the less-expensive models (under $300), we think the Biesemeyer offers a good value because of its rugged simplicity, proven track record, and customer service. For example, Biesemeyer will refund the total cost of the fence plus shipping if you're dissatisfied. If you want to take up the matter with Bill Biesemeyer, he's readily available at the company's toll-free number. Unless you use your tablesaw for several hours each day, the home-shop version should be durable enough for your needs.

For a few dollars more, you can buy the smoother-gliding and incredibly precise Paralok system ($330–$390) if the installation doesn't scare you—and it really shouldn't if you can allot a couple hours to the task. The susceptibility of the pulleys to sawdust and wear over time concerned us, but Waters said his firm "has shipped no more than 30 replacement pulleys and six cables" to the owners of the 4,000-plus units in service.

If you're a routing enthusiast and plan to mount a router in your extension table, the Excalibur ($369) offers you a lot of extras. First, an accessory list includes a router-mounting kit and router fence. Second, since you have to stand on the rear side of a tablesaw when routing, the Excalibur has the advantage of allowing you to turn the fence around and lock the lever end on the rear rail. When it's time to move the fence, none of them slide as smoothly up and down the rails as the Excalibur.

At $465 list, the Delta ranks as the most expensive of the five systems, but if you do a lot of cutoff or thin-stock work, you'll appreciate its high-low fence that slides back for crosscuts. The Delta system, like the others, will mount to other manufacturers' tablesaws, not just the Delta Unisaw.

Written By Bill Krier
Technical consultant: George Granseth
Illustrations: Kim Downing; Mike Henry
Graphic Design: Perry A. McFarlin
Photographs: Jim Kascoutas

Print this article

# STEAM

**In the early 1800s, when steam locomotives provided one of the main means of transportation and freight hauling, the whistle communicated many messages (see our box at right for examples). Now, we've designed our own whistle, reminiscent of days (and trains) gone by. Kids love 'em and many adults can't resist them.**

***Note:** You'll need some ⅜"-thick maple stock for this project. You can either plane or resaw thicker stock to size.*

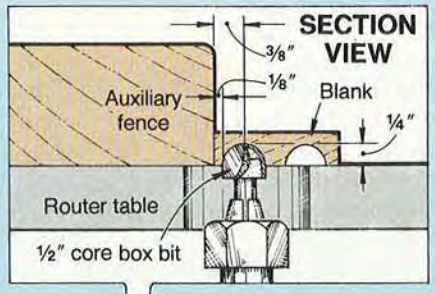
## LET'S GET ROLLIN' WITH THE WHISTLE BLANK

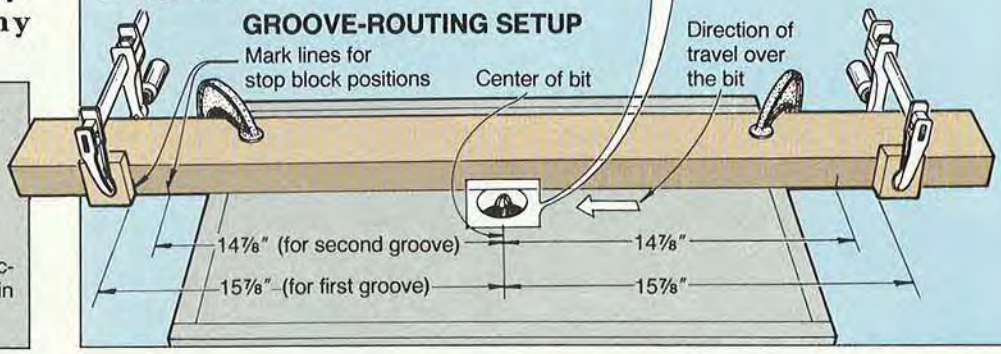
**1** Cut a ⅜"-thick piece of maple to 1½" wide by 16½" long. (We cut a piece of ¾" stock to 1½ × 16½" and then resawed it to ⅜" thick.)

**2** Chuck a ½" core-box bit into a table-mounted router. Clamp a 40"-long straight board to the router table to act as a fence. Elevate the bit to cut a ¼"-deep groove. Position the fence ⅜" from the center of the bit where shown on the Section View *below.* Measure 14⅞" from the center of the bit in both directions along the fence and make two equidistant marks on the fence where shown on the drawing *below.* Repeat by marking a pair of lines 15⅞" from center.

**3** Set stops at each 15⅞" mark and rout a ½" stopped groove ¼" deep along one face of the

Apply glue to the mating surfaces. Then, glue and clamp the pieces with the edges and end flush.




### WHAT DO THOSE WHISTLE BLASTS MEAN?

2 long, 1 short, 1 long: Warning when approaching a crossing
3 shorts: Train backing up
1 long: Train stopping
2 long: Acknowledgement of a conductor's signal, and also that the train is about to move ahead

Written by: Marlen Kemmet

# LOCOMOTIVE WHISTLE

whistle blank. Reset the stop blocks to the 14⅞" pair of lines (don't move the fence), turn the block around, and rout the second stopped groove.

**4** Using the Routed Blank Drawing *below* for reference, crosscut a 7¾"-long piece for the whistle bottom (A) and a ⅞"-long piece for part B from the maple blank. Now, tilt your saw blade 45° from vertical, and miter-cut the top piece (C) to a 6⅞" finished length from the remaining maple blank.

**5** For reference later when cutting the angled end of the assembled whistle, mark an X on the edge nearest the *longest* routed groove on both pieces.

## HOW TO MAKE THE TOOT FOR THE TOOTER

**1** Crosscut a 12" length of ½" dowel stock. Sand a taper on each end of the dowel identical to that shown on the Dowel Detail on the Exploded-View Drawing. (We sanded the taper on a stationary sander; if your belt sander has a flat top, set the sander upside down, and then sand the dowel.)

**2** Cut two ⅞"-long pieces from the ends of 12" section of ½" dowel. If either piece doesn't match the Dowel Detail, repeat the process on the remaining piece of dowel.

## THE END OF THE LINE—FINAL ASSEMBLY

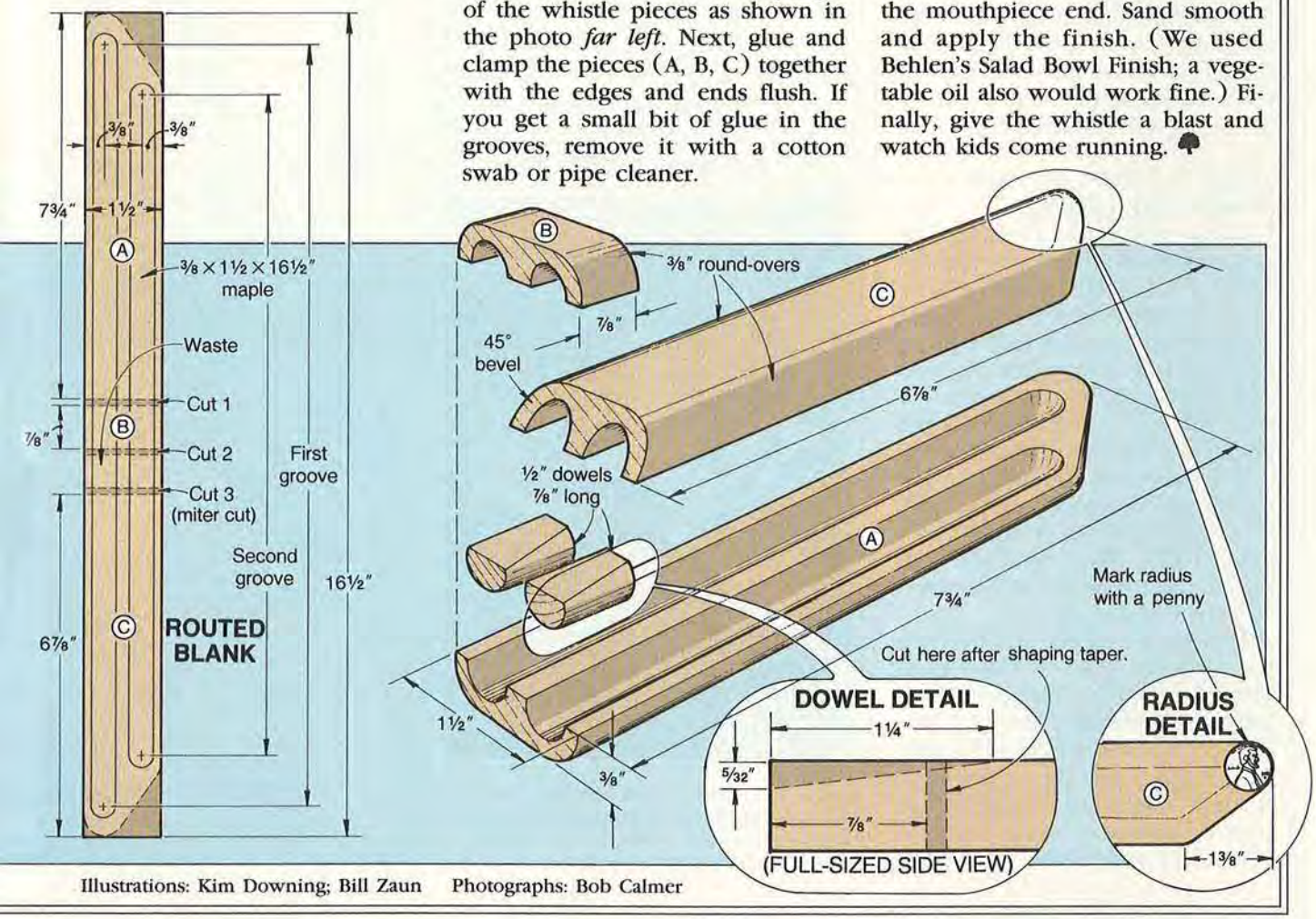
**1** Spread glue on the mating edges of the whistle pieces as shown in the photo *far left*. Next, glue and clamp the pieces (A, B, C) together with the edges and ends flush. If you get a small bit of glue in the grooves, remove it with a cotton swab or pipe cleaner.

**2** Glue the ⅞"-long dowel pieces into the ½" holes in the end of the whistle. (For the best sound, keep the dowel tapers parallel with the bottom of part A.)

**3** Trim about 1/32" off the mouthpiece end of the whistle.

**4** Using a penny, trace around its outline to mark a radius, and then mark an angled cutoff line on the end of the whistle where shown on the Radius Detail accompanying the Exploded-View Drawing. Be careful to mark the radius on the corner nearest the marked X, or you'll cut into a stopped groove when angle-cutting the end to shape. Band-saw the whistle end to shape and sand smooth.

**6** Rout a ⅜" round-over on all but the mouthpiece end. Sand smooth and apply the finish. (We used Behlen's Salad Bowl Finish; a vegetable oil also would work fine.) Finally, give the whistle a blast and watch kids come running.




Illustrations: Kim Downing; Bill Zaun  Photographs: Bob Calmer

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# SIMPLY SPECTACULAR
# LAMINATED BUD VASE

**It's time to make arrangements—flower arrangements, that is—for this see-through vase. The wood for this shamefully simple project should be as close as your scrapbox. And, we've found a convenient supplier for the test tubes you'll need to keep the flowers looking fresh day after day.**

## CUT AND ROUT THE MAPLE FOR THE VASE BODY

**1** Rip and crosscut a piece of ¾"-thick maple to 1½" wide by 18" long. You'll crosscut this later for the vase body (A).

**2** Fit your table-mounted router with a ¾" core-box bit (we used a carbide-tipped bit). Then, position the fence where shown on the drawing at *right*. Raise the bit ¼" above the surface of the router table. Start the router, and rout down the center of the maple strip. Raise the bit ⅜" above the surface of the table and make the second cut.

**3** Cut the 18" maple strip in half.

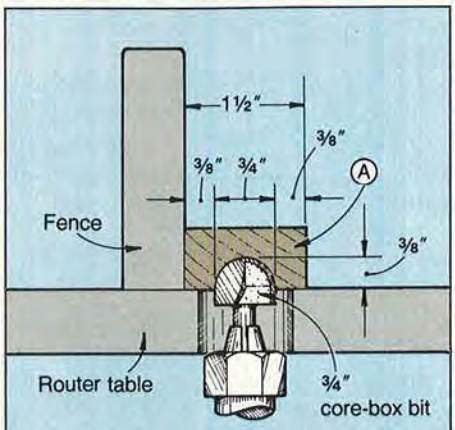
## MAKE A TEMPLATE AND SHAPE THE OPENING

**1** Using carbon paper, transfer the pattern shown at *right* to a piece of scrap stock (we used ¼" hardboard). Cut the template to shape.

**2** Dry-clamp the two maple pieces together (no glue) with the ends and edges flush. Next, measure 1¾" from the top end and mark a perpendicular line across the joint line where shown on the photo at *right*. Center the template on the joint line with one point against the marked line. Then, trace the template outline onto the maple pieces as shown in the photo.

**3** Remove the clamp, and bandsaw the marked curve on each maple piece. Sand each curve smooth (we used a drum sander chucked in a drill press). Hold the pieces together and check that the curves align.

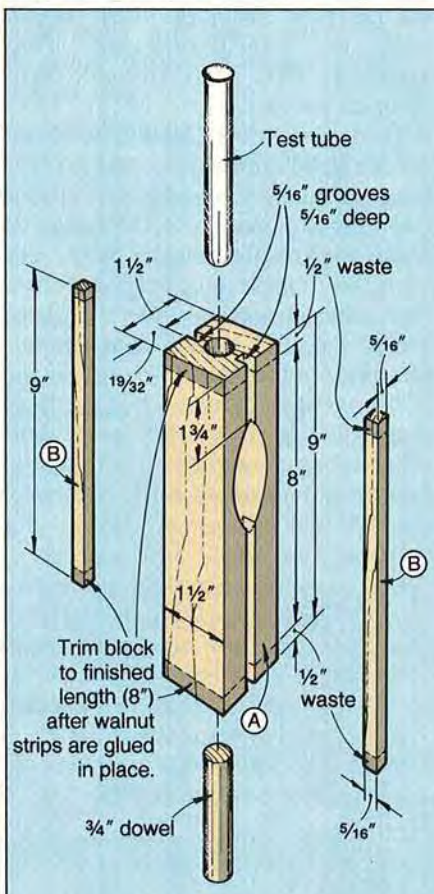
**4** Hold the pieces together (we used a handscrew clamp) with the edges and ends flush, and check

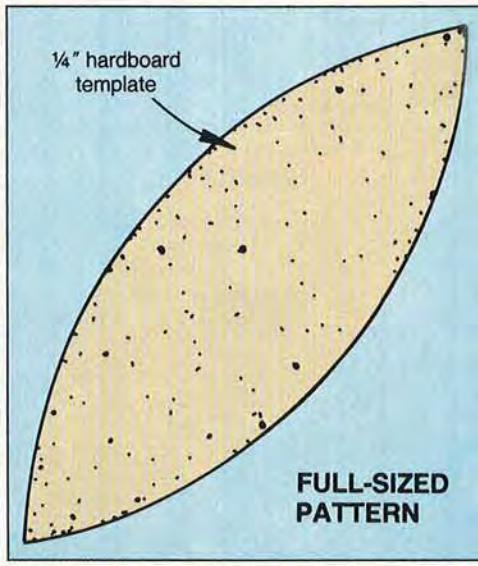


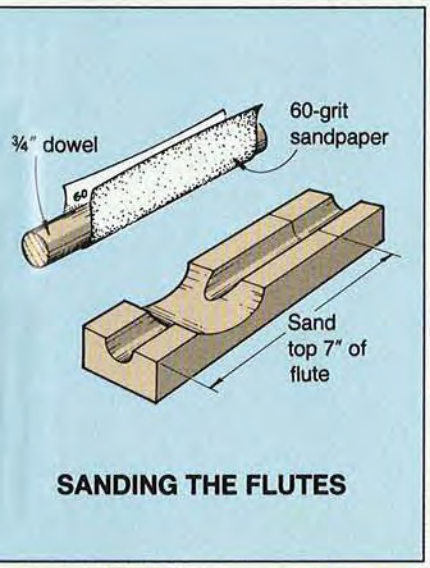

Note: Rout to a ⅜" depth in two passes.

**FORMING THE FLUTE**

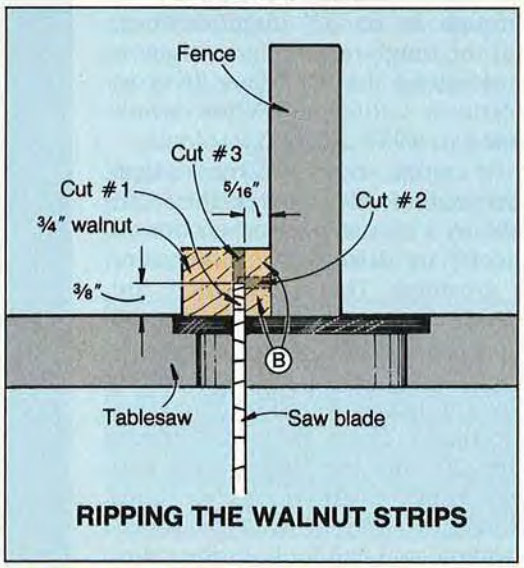
**Center the template over the joint line and against the marked line. Trace the template outline onto the clamped-together maple pieces.**






**SANDING THE FLUTES**




**RIPPING THE WALNUT STRIPS**

the fit of the test tube in the hole. (See the Buying Guide for our source of test tubes.) As shown on the drawing, sand the top 7" of each flute. Clamp the pieces and check the fit. The test tube should slide easily from the hole when you tip the vase upside down.

**5** With the edges and ends flush, glue and clamp the two maple parts. Immediately remove any excess glue from the routed hole and opening. (We used a ½" dowel to remove glue from the hole.)

## NOW, ACCENT THE VASE WITH WALNUT

**1** Cut or rout a 5/16" groove 5/16" deep centered over the joint line on the front and back surfaces in the vase body (A). The Exploded-View Drawing shows the location.

**2** Cut a piece of ¾"-thick walnut to 1" wide by 9" long. Follow the three-step drawing *below left* to cut two walnut strips (B) from the 9"-long piece. Check the fit of the strips (B) in the grooves. Glue the strips into the grooves.

**3** For a 8" length and flush ends, trim ½" off each end of the vase.

## FIT THE TEST TUBE AND ADD THE FINISH

**1** Insert the test tube into the top end of the vase, allowing ⅛" to protrude above the top of the vase.

**2** Insert a ¾" dowel into the opposite end of the vase until it makes contact with the bottom end of the test tube. Mark a cutoff line across the dowel flush with the bottom edge of the vase. Remove the dowel and cut it to length. Glue the dowel into the vase. Sand the vase smooth and finish as desired.

## BUYING GUIDE

• **Test tubes.** 20×150mm (approximately 13/16×5⅞") $4.50 ppd. for a package of six. Sharay, P.O. Box 3093, Des Moines, IA 50316.

Project Design: Brian De Muth, Pinnacle Woodworks, Baltimore, MD
Photographs: Jim Kascoutas
Illustrations: Kim Downing; Bill Zaun

# CHAMPION

**Oregon Big Tree backers once offered $300 to anyone finding a Douglas fir that could whip Washington's biggest Douglas fir. And Ohioans would love to have a speciman of their state tree crowned national champ—if it grows in the Buckeye State. Kansas was thrilled enough with their champion elm to protect it with a state park. If you enjoy looking at trees more than a board foot at a time, you just might have the right stuff to become a Big Tree hunter.**

"It's kind of a 'Ripley's Believe It or Not' of trees," says Deborah Gangloff, director of communications for the American Forestry Association (AFA) and coordinator of their National Register of Big Trees. "But, the whole point of the program is to get people interested in trees by identifying, then preserving them."

Gangloff receives more than 100 nominations a year from just such interested people across the nation who have found a tree they believe large enough to be a national champ. In fact, Big Tree hunters (see *page* 77) have been nominating trees for greatness since the program began in 1940.

The current Big Tree list came out in May 1988 (it's published in entirety every four years, and updated with listings of new winners every two). On it are 650 champions out of a possible 850 species of native and naturalized trees, as listed in the U.S. Forest Service's Agriculture Handbook No. 541, *Checklist of United States Trees (Native and Naturalized),* 1979, by Elbert L. Little Jr.

### AMONG THE GOLIATHS, SOME DAVIDS DWELL

On the latest Big Tree list, you'll find some dandies. For instance, the champion Giant Sequoia, in California's Sequoia National Park stands 275′ tall and has a circumference of 83′2″! This country's largest white oak happens to reside in Wye Mills, Maryland—it towers to 107′ and measures nearly 35′ around. Maryland officialdom was so delighted with their champion oak that they designated the ground it grows on as a state park.

That's what happened in Kansas, too, when the 95′-tall, 26′-circumference American elm growing near Louisville, on the banks of the Vermillion River, was crowned a national champ. The state acquired the 1½-acre plot where it grows for a one-tree state forest.

Then, there's the Goliath of a white ash that grows, of all places, next to a steakhouse in Palisades, New York. It comes in at a height of 95′ with a girth of 25′. And who could help but cheer on the nation's biggest sugar pine? A fire burned a hole large enough to walk through in its 32′ circumference, but the tough tree still grows vigorously along the Stanislaus River in northern California. When nominated in 1967, it stood 216′ tall.

Of course, most Big Tree hunters seek out the largest tree they can find in a species. However, not all species are destined for dimensional greatness. That's why there are some comparative midgets on the Big Tree list, too.

The Alleghany plum, for example: The largest found to date (two specimans claim the title) plows only 20′ into the Virginia sky and you could easily ring your arms around it. And in Fredericksburg, Virginia, you can look up the clammy locusts that share the species'

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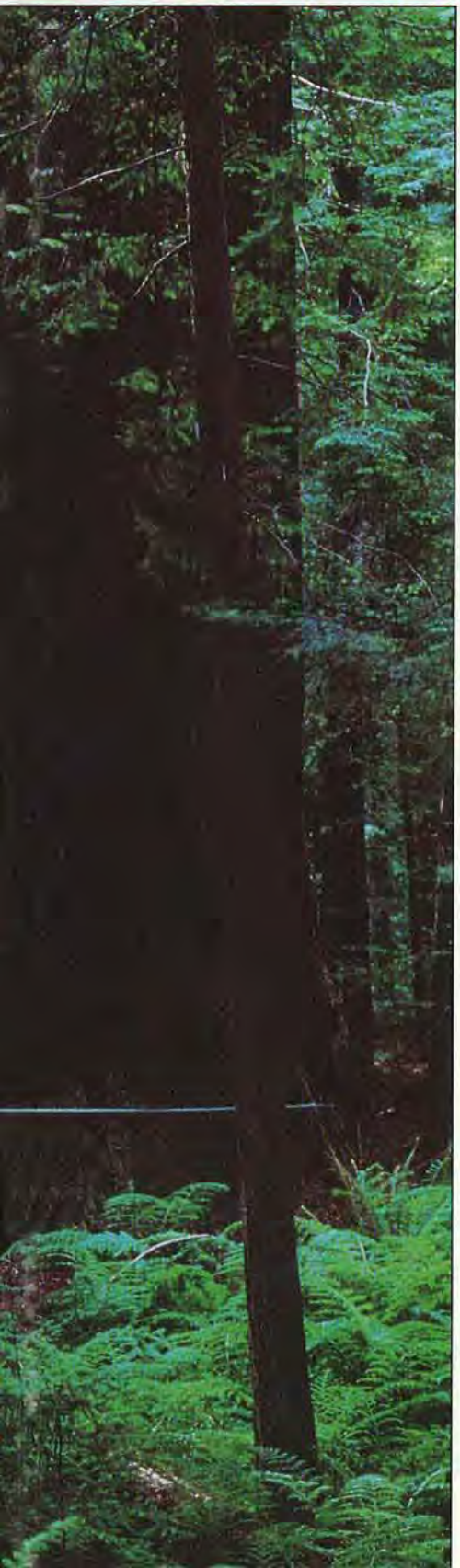
# TREES

Across the nation, the search is on for colossal contenders. Why not join in the hunt, and the fun?



crown, that is, if someone hasn't borrowed them for clothesline poles. They each measure but 5" around and stand just 12' tall!

### WAR BETWEEN THE STATES—TREE BY TREE

According to the Big Tree program coordinator, "There's a little good-natured competition between many of the states, especially Oregon and Washington." In one story she tells about the friendly conflict, Oregon had dibs on the largest Sitka spruce, a 206'-high giant. But in Washington, a new, eager-beaver state Big Tree coordinator set his sights on capturing the crown. And, sure enough, he found one suitable for nomination. It was shy of champion height by 15', but boasted 2' more girth than Oregon's defender. After tape measures were drawn, extended, and the results duly recorded, the matchup was a draw—Oregon's and Washington's Sitkas now reign as co-champions. Miffed, Oregon Big Tree backers promptly set out searching for a Sitka spruce that could win it all. After all, Oregonians are still willing to pay $300 for a Douglas fir bigger than the one Washington has on the national register. Especially since the Doug fir happens to be the Oregon state tree!

As you might suspect, having the largest tree of a species in any particular state represents quite an honor. Yet, it doesn't hold a candle to the swell of pride that could surface if that largest tree also turned out to be the official state tree. Says Gangloff, "The people in Ohio are obviously concerned because the largest Ohio buckeye tree happens to be in Kentucky."

Cross-checking the Big Tree register with a list of official state trees, only nine states so far claim "native" champions: California, Colorado, Florida, Maryland, Mississippi, New Mexico, Oregon, Virginia, and Washington. By the time you have read this though, the records could have changed. And, if your state isn't represented on the Big Tree list by a native son, you better think about looking for a champ!

### HOW TO SIZE UP A CHAMPION

Big Tree hunters first must accurately identify their challenger. You'll find that easy enough with some species, such as white birch. Others—the oak, for instance, with more than 40 family members—might require an expert's opinion. Then, after you're absolutely certain of the tree's true identity, you must carefully measure it.

Follow the guidelines set by The National Register of Big Trees (see where to write for details at end of this article). It crowns a champion based on the number of points derived from the combination of three measurements: trunk circumference, or girth (in inches, measured 4½' above the ground) vertical height (in feet) *plus* ¼ of

*continued*

### GUESS WHERE THE TREES ARE!

At press time, The American Forestry Association listed 47 states with state foresters or volunteers serving as Big Tree program coordinators, although not all those states can brag about a champ on the national list. *Can you guess which states aren't represented by record-setting timber? And, what states have the most Big Trees?*

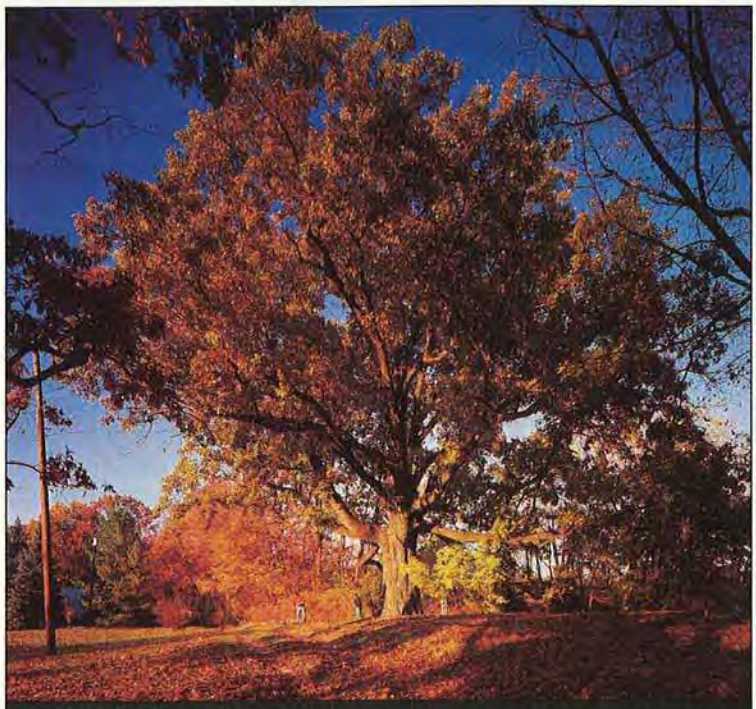
For the surprising answers to these questions, turn the page.

**◀ "The Dyerville Giant," the national champion coast redwood, in California's Humbolt Redwoods State Park, measures more than 52' in girth! On the Big Tree list since 1966, the redwood stands 362' tall.**

its average crown spread (in feet) *equals* number of points.

Let's say it was you who spotted the reigning black walnut tree up in Humbolt County, California, way back in 1975. Here's how your measurements would have added up: girth, 271″ *plus* height, 122′ *plus* spread, 34′ (134′ ÷ 4) *equals* 427 points. And, remember, according to the rules in force at this time, it takes a challenger with at least five more points to dethrone a Big Tree.

In the free pamphlet, *The National Register of Big Trees*, that describes the program, the AFA details exactly how to take the required measurements and submit a nomination. For $5, you can get a spiral-bound copy of the latest Big Tree list. It includes the description and location of the champions in each species. For either publication, and the name of your state Big Tree coordinator,



In St. Clair County, Michigan, stands the national co-champion black oak. Last measured in 1984, it towered to a height of 127′.

## TRIUMPHANT TREE HUNTERS

"There's probably very few championship-caliber trees in the Northwest I don't know about," proudly states avid Big Tree hunter Maynard Drawson of Salem, Oregon. And, that's not bragging.

Maynard—who describes himself as a "young 63"—has found and nominated about 50 national champion trees since he became fascinated with the program 25 years ago. "But that's counting dethroned champions, too," he adds. "Currently, I have a dozen."

Oregon's Maynard Drawson

A semiretired barber, Maynard caught the Big Tree bug on his days off, with the help of an expert. "In 1964, I met the late Oliver Mathews, founder of the National Register of Big Trees. He was up there in age, going blind, and couldn't drive. So, I'd take him around to see trees, and learned about them. I found out that you don't just go out and get a sack lunch and start looking. You look all the time, wherever opportunity takes you."

As advice to would-be tree hunters, the giant-seeker says that 90 percent of his champions were found along the highway, in a park, or in someone's yard. "You just learn to pay attention. For instance, I found a champion tree while visiting a champion tree. I took my five boys up to Duvall, Washington, to see this big spruce [since dethroned]. We were walking down the trail, when suddenly I told them to stop," he remembers. "Right there was the biggest vine maple that has ever been recorded! It was 4′3″ in circumference, when vine maples are usually only about as big around as your forearm. Hundreds of foresters and other people had come through the years to see that record spruce and walked right past the vine maple!"

### HUNTING UP STATE PRIDE

Paul Thompson, 79, of Bloomfield Hills, Michigan, has been hunting big trees since the early '50s. He claims about 50 present champions, and says it all began because of state pride.

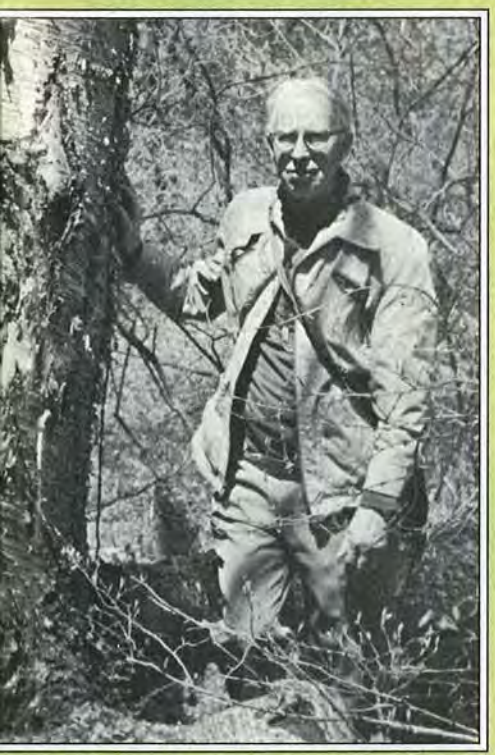
At 35½′ tall, a David compared to some Big Tree Goliaths, this southern crab apple tree in North Carolina still ranks as a champion.

write: *National Big Tree Program, The American Forestry Association, Dept. WD, P.O. Box 2000, Washington, DC 20013.*

Keep in mind, you don't have to be a tree expert to find champion trees. In the words of Maynard Drawson, Oregon's barber-turned-Big Tree hunter, "If you have an interest in trees, then the Big Tree program is open to you." Happy tree hunting!

**ANSWERS:**
**WHERE THE TREES ARE**

Although these findings could change, presently Nebraska, North Dakota, and South Dakota aren't represented on the national Big Tree list by any species. Florida leads with 106. Texas ranks second with 77, then comes California with 73. "These states have so many trees on the list because, in the first place, they have many more species than other states, and secondly, they have active state Big Tree coordinators," notes the American Forestry Association's Deborah Gangloff.



Michigan's Paul Thompson

"When I first saw the AFA's national Big Tree list in 1945, there were only three national champions in Michigan, out of 228," says Paul. "I figured there were a lot more Big Trees around in this state than that."

At the time, Paul was looking for a project for the Michigan Botanical Club. "We put together a committee, got some publicity, and found out right away that we could get some new champions fast," he recalls. "As you might expect, there are quite a few trees in this state. All we had to do was find the big ones. Eventually, we became the leading state in the country for a number of years—until Florida got active."

A professional ecologist, Paul traveled the state in his role as a field representative for Michigan's Nature Conservancy. "Quite often I'd spot champion trees from the road when I was traveling around," notes Paul. "On a recent trip for a research study, I picked up 12 new trees for state and national records."

To novice Big Tree hunters, Paul offers this counsel: "Once you get some idea of what size to look for, finding big trees becomes easier. Measure some trees, compare them with the records. Get an idea of what a large tree looks like. And, don't forget, there also are small trees that most people don't pay attention to that could still be national records," he notes. "A number of years ago, we had a national champion redbud tree that was about 115″ in circumference. But it was pretty old, and in a few years it died. The new champion was about half that size!"

Written by Peter J. Stephano
Photographs: Coast redwood, Harald Sund; black oak, southern crab apple, Henry Groskinsky

# WE'RE TALKIN'

## 9 QUESTIONS WOODWORKERS KEEP ASKING

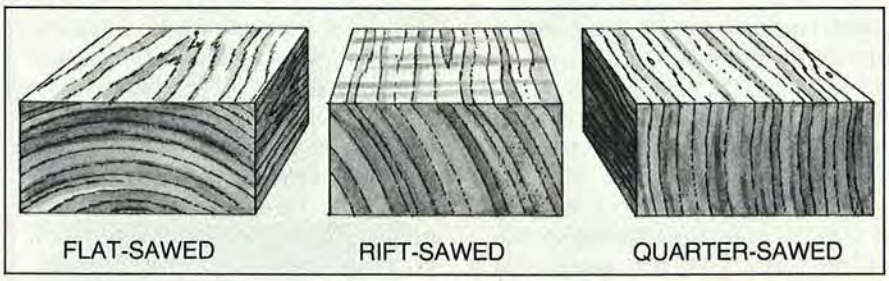
**If you think you're the only one who has questions about buying hardwoods, think again! We surveyed eight hardwood dealers from around the country—perhaps one of these guys sold you a piece of wood last week—and here's what they hear from customers day after day.**

**1 What do flat-, rift-, and quarter-sawed mean?**

Mill operators today try to squeeze as much usable lumber as possible out of a log, so they run the raw stock through a blade that slices off one board after another. This through-and-through cutting method creates about 80 percent flat-sawed lumber. A log can be cut to yield a lower percentage of flat-sawed lumber, but with considerably greater time, effort, and wastage. Here's a brief guide to the three types of sawed lumber:

***Flat-sawed:*** As shown *below,* end-grain runs in long, sweeping lines almost parallel to the face of the board, creating the familiar cathedral face grain. According to Dick Boak of the Martin Guitar Company in Nazareth, Pa., these boards have a greater tendency to cup, twist, or crack (especially near the middle of the board) than lumber in the next two categories.

***Rift-sawed:*** Grain lines run at about 45° to the face of the board. These boards show a beautiful figure in the form of long, sweeping stripes resulting from the rays that run from the center of the tree toward the bark. You'll often see this figure in oak.




***Quarter-sawed:*** With grain lines running at 90° to the face, these cuts produce strong, stable boards with straight-grain face figure. Manufacturers of products that require strong woods, such as cue-stick makers, purchase large quantities of quarter-sawed lumber. For example, Howard Hughes built his infamous *Spruce Goose* almost entirely of "aircraft-quality" or quarter-sawed spruce. You can specify quarter-sawed boards from some manufacturers, but expect to pay a premium price.

**2 I'm making a gift for a woman. What woods should I use? What woods appeal more to men?**

"Women prefer light-colored woods and woods with more 'flash,' such as Brazilian tulipwood, bird's-eye maple, purpleheart, and Brazilian satinwood," according to Jim Heusinger of Berea Hardwoods of Berea, Ohio. How does Heusinger know this? "When a man and woman shop for wood together, I often hear the woman say 'Look at this beautiful wood!' And that's usually the wood they buy.

"On the other hand, men seem to prefer dark, rich woods with straighter grain, such as walnut, wenge, bubinga, ebony, cocobolo, and mahogany.

Print this article

# HARDWOOD

**3 What does "random width and length" mean, and why can't I buy hardwoods in dimensional sizes (1×6, 2×4, 2×8, etc.)?**

"Because hardwood trees take longer to grow—making them more valuable than softwoods—they're cut in random widths and lengths to yield as much wood as possible from each log," says Dave Forness of Northeastern Hardwoods in Salamanca, N.Y. "Loggers die bringing these hardwoods out of the forest, so I hate to see anything wasted. On the other hand, relatively inexpensive softwood logs are cut to the standard sizes necessary in the building trades, leaving a lot of waste on the floor of the mill."

But consumer demand changes the market. Some hardwood outlets, including Frank Paxton Beautiful Wood stores in the central part of the country, now sell some hardwoods in dimensional sizes.

"Five years ago, you couldn't have sold hardwoods that way, but people don't seem to mind paying the extra price for it," says Bob Byers of Paxton's Denver store. For example, red oak finished on three sides (both faces and straightline ripped on one edge) sells for $3.69 per board foot in random widths and lengths at Paxtons. The same species finished on four sides, in 1×12 dimension, sells for $5.05 per lineal foot—a cost difference of about 36 percent.

Officials at Weyerhaeuser Corporation in Titusville, Pa., seem to agree with Byers' assessment, because the firm now markets dimensioned hardwoods in 3,600 home centers and hardware stores nationwide. Through its Choicewoods program, the company surfaces hardwood on four sides and sells it in 2"–8" widths, in 3'–8' lengths, and in red oak, poplar, maple, cherry, walnut, western red alder, and ash. For this highly finished product, you'll pay a premium price. For example, a 1"×6"×6' red oak board costs $16.99, or $5.66 per board foot. Why? "We guarantee every board to be free of defects, so we only get a 42 percent yield from each log," says Doug Bolton of Weyerhaeuser.

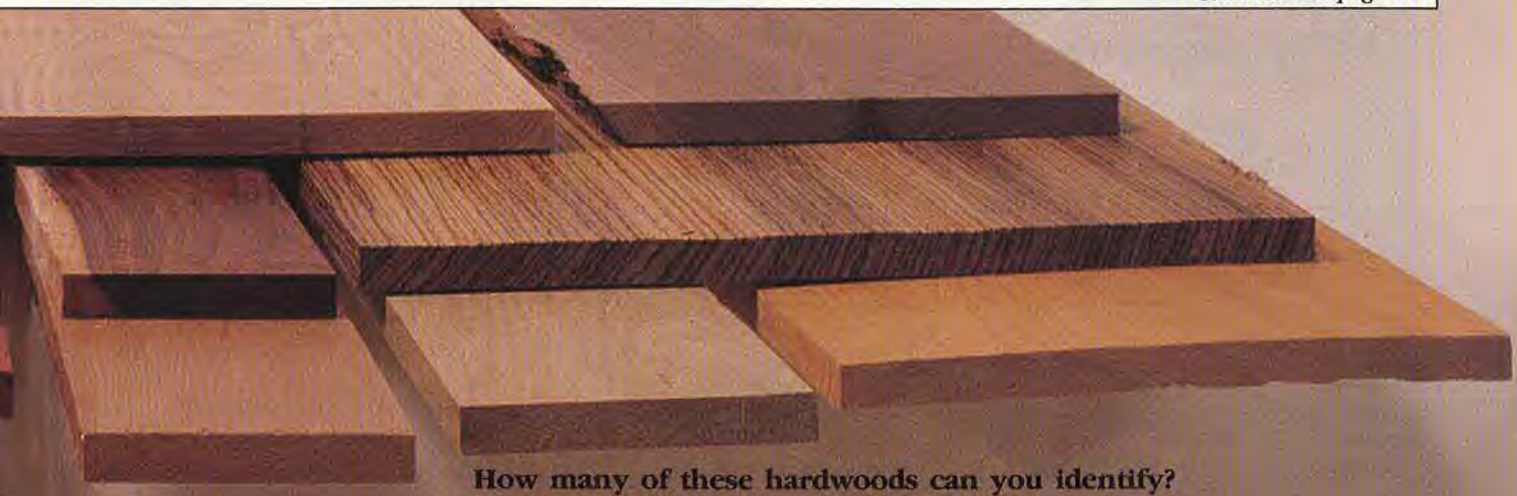
**4 What woods are toxic?**

"I wouldn't sell any wood if it was poisonous—that would be insane," Jim Heusinger says about so-called toxic woods. "Some woods, such as cocobolo or aromatic red cedar, cause more allergic reactions than other woods, but sensitivity to all woods varies greatly from individual to individual. My advice: If you notice a reaction such as a rash when you're working around a specific wood, just stop using that wood. And since wood dust of any type can harm you, it only makes sense to wear a dust mask no matter what wood you're working."

**5 What does 4/4 (pronounced "4 quarter"), 5/4, etc. mean?**

Dick D'Abate of Woodworkers Supply in Phoenix hears this question often, and here's how he answers it: "A board that's 7/4 started as a 1¾"-thick board and was surfaced on both sides and is now 1½"-thick. An 8/4 board was 2" thick in

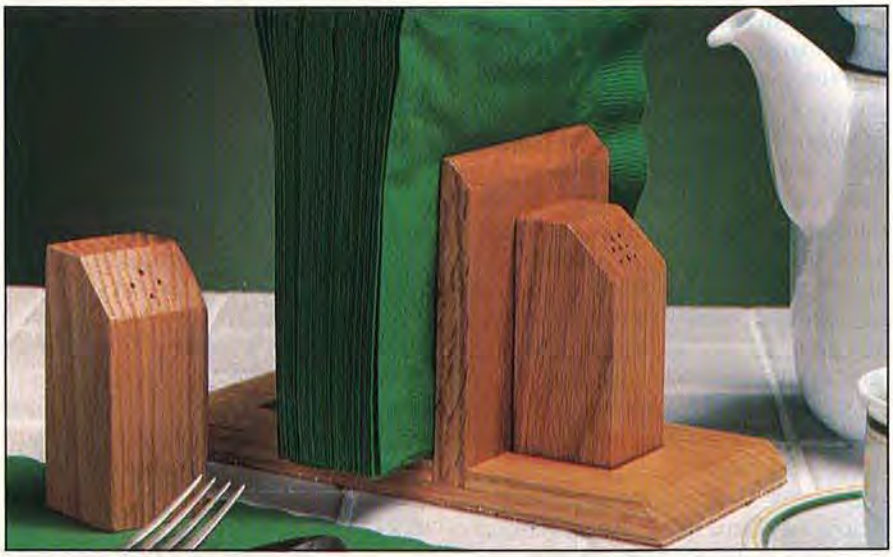
*Continued on page 88*



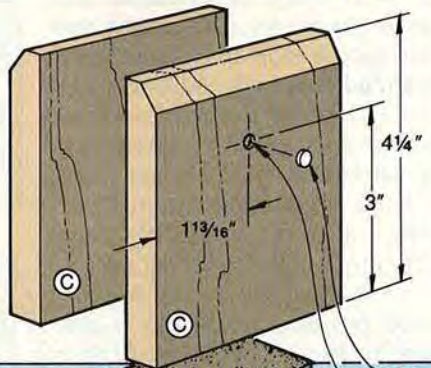
**How many of these hardwoods can you identify?**
You can find the true identities on page 90.

Print this article

# CONDIMENTS GO CONTEMPORARY
# SPICED-UP NAPKIN



**Great projects deserve attention. This helpful dining accessory will get rave reviews because it organizes three mealtime essentials into an attractive angular package. So, tie on a shop apron and follow our how-to recipe.**




## BUILD THE BASE FIRST

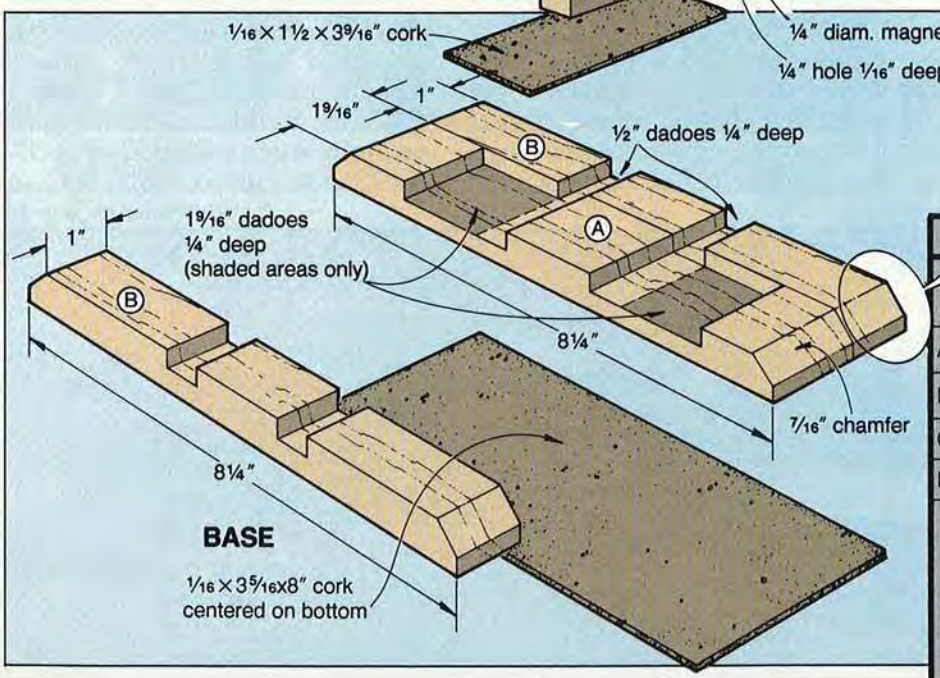
**1** From ½" oak, cut the base parts (A, B) and uprights (C) to the sizes listed in the Bill of Materials.

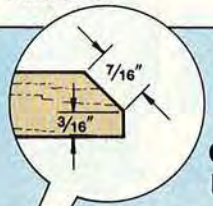
**2** With a square, mark the locations and then cut a pair of 1 9/16" dadoes ¼" deep for the shaker recesses in part A where dimensioned on the drawing *below right*. Then, sand the dado bottoms smooth.

**3** Glue and clamp the base pieces (A, B) with the edges and ends flush. Immediately remove any glue squeeze-out in the dadoed recesses. Later, remove the clamps, scrape off the excess glue, and trim about 1/32" off each end for flush ends.

**4** Mark the location of the dadoes for the uprights (C) where dimensioned on the drawing *below right*. As shown on the drawing, cut the dadoes to the same depth as the previously dadoed recesses.

**5** Chamfer both ends of the base (A, B) and one end of each upright as dimensioned on the Chamfer Detail *below*. (We formed the chamfers using a table-mounted router and chamfer bit.) Sand the base smooth.




**CHAMFER DETAIL**

**Bill of Materials**

| | Part | Finished Size* T | W | L | Mat. | Qty. |
|---|---|---|---|---|---|---|
| A | base center | ½" | 1 9/16" | 8¼" | O | 1 |
| B | base edges | ½" | 1" | 8¼" | O | 2 |
| C | uprights | ½" | 3 9/16" | 4¼" | O | 2 |
| D* | shakers | 1½" | 1½" | 3⅜" | LO | 2 |

Key: O = Oak LO = Laminated Oak

*Part marked with an * is laminated oversize and then trimmed to size. Please read the instructions before cutting.

**Supplies:** two #7 corks, spray-on adhesive or double-faced tape, finish, 1/16"-thick cork, four ¼"-diameter magnets.

# HOLDER

**6** Glue and clamp the uprights into the dadoes, checking that they are square with the base. Remove excess glue with a damp cloth.

**7** Cut a piece of 1/16" cork to 3 5/16 × 8". Glue the cork to the bottom of the base (we used woodworker's glue). The cork sits in 1/8" from each edge. Cut and glue a piece of cork between the uprights.

### THE SHAKERS COME NEXT

**1** From 1/2" stock, rip and crosscut one strip 1 3/4" wide by 30 1/2" long. Cut three 10"-long pieces from the strip. Now, glue and clamp the pieces together face to face with the edges and ends flush. (You'll need a lamination this long for safe machining in the next step.)

**2** Remove the clamps and scrape off the excess glue. Rip or joint the edges (not the faces) for a 1 1/2"-square lamination.

**3** Crosscut both ends of the 10"-long lamination square. Now, measure 3 3/8" in from each end and mark cutoff lines across the lamination. Repeat for the other end. Then, using a combination square and the dimensions on the shaker drawing, mark an angled cutline on each end of the lamination.

**4** Cut each of the two shakers to 3 3/8" length; *do not* angle-cut the pieces yet.

**5** Mark diagonals on the bottom end of each shaker to find center. With a Forstner bit, bore a 1 1/4" hole 3/8" deep centered into the bottom of each shaker. Switch to a 3/4" Forstner bit, and bore a 2 5/8"-deep hole centered inside the 1 1/4" hole. See the Section View for reference.

**6** Angle-cut the top end of each shaker (we used our radialsaw to make the angled cut).

**7** Push a #7 cork into the 7/8" hole in each shaker. If the bottom of the cork protrudes, belt-sand the cork flush with the shaker bottom.

### DRILL THE HOLES AND ADD THE MAGNETS AND FINISH

**1** Trace or photocopy the full-sized hole and outline patterns onto white paper. Cut the outlines to shape and adhere one to the angled surface of each shaker with spray-on adhesive or double-faced tape.

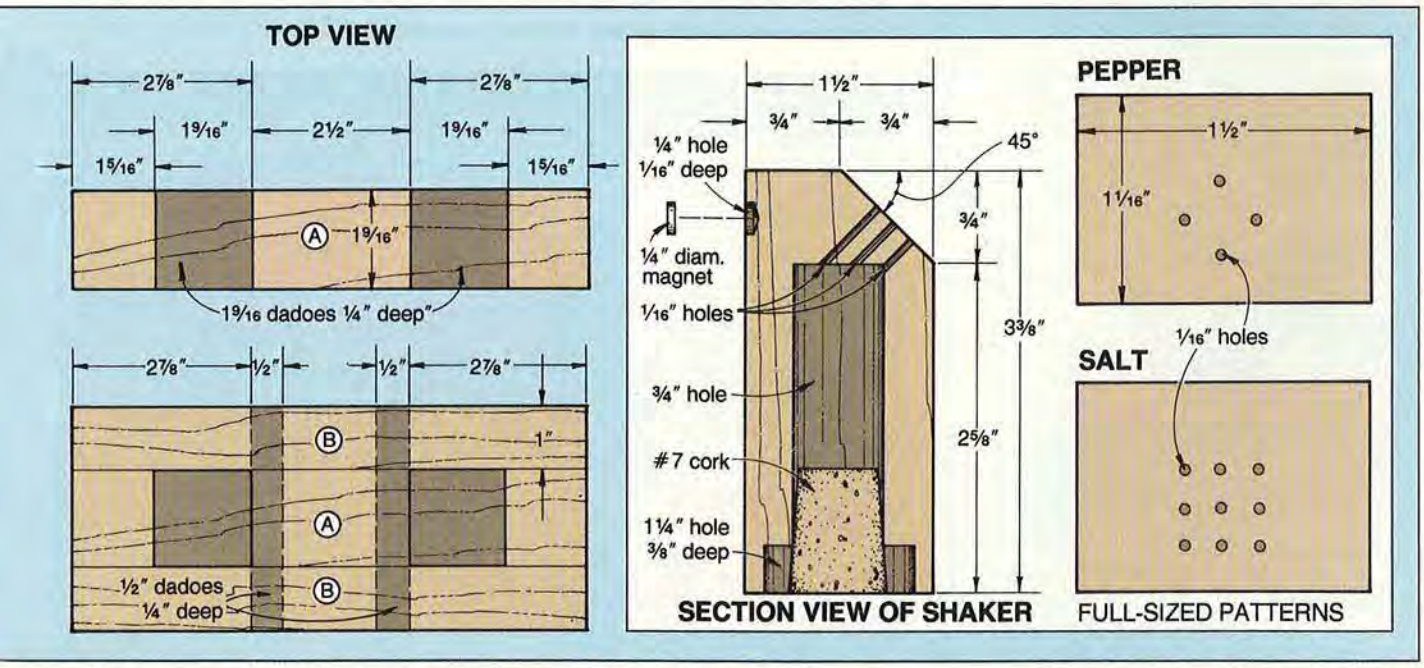
**2** Clamp a shaker into a vise with the angled surface level. Make an indentation at each hole mark with an awl. This keeps the drill bit from wandering when drilling the holes. Then, drill 1/16" holes where indented. Remove the pattern and repeat with the second shaker.

**3** Sand the base and shakers smooth. Stain if desired (we left ours natural) and apply the finish.

**4** To remove any finish that may have seeped into the 1/16" condiment holes, hold a 1/16" drill bit with your fingers. Then, insert the bit into each hole, and twist the bit with your fingers.

**5** Drill a 1/4" hole 1/16" deep in each upright where located on the Base Drawing. Place a 1/4" dowel center in each hole. Position a shaker in each dadoed recess and press each against the dowel center to transfer the mating magnet hole location to the shaker. Drill a 1/4" hole 1/16" deep into each shaker where indented.

**6** With instant glue or epoxy, glue a magnet in each hole. Check that each magnet faces the right way to attract the mating magnet.




Project Design: James R. Downing  Photographs: Hopkins Associates  Illustrations: Kim Downing; Bill Zaun

# FLIGHT OF FANCY
# PARROT MOBILE

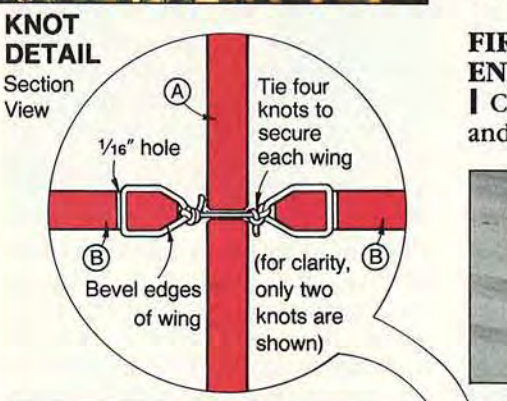
***Note:** For your convenience, we have created full-sized patterns of the body and wings, which you can order from us FREE. (See the end of the article for ordering instructions. You also get full-sized patterns with the parrot kit listed in the Buying Guide.) Or, if you just can't wait to get started, enlarge the patterns shown here.*

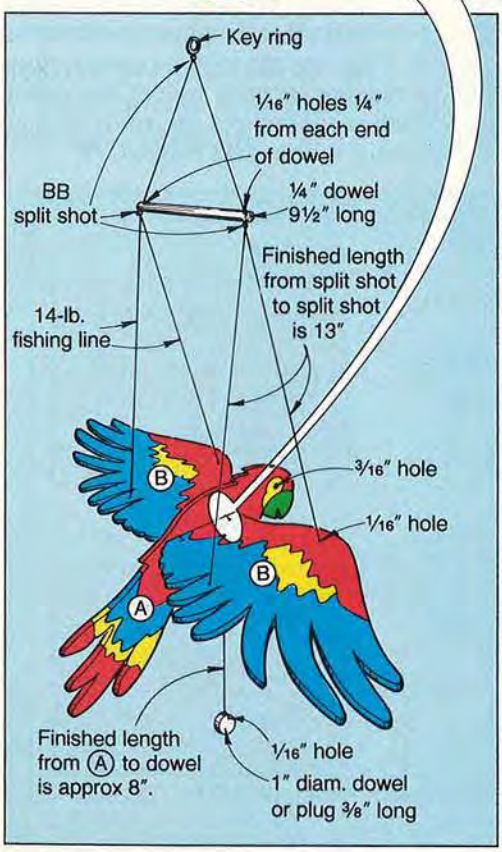
## FIRST THINGS FIRST: ENLARGE THE PATTERNS

**1** Cut one piece of paper to 9×15" and another to 8×14".

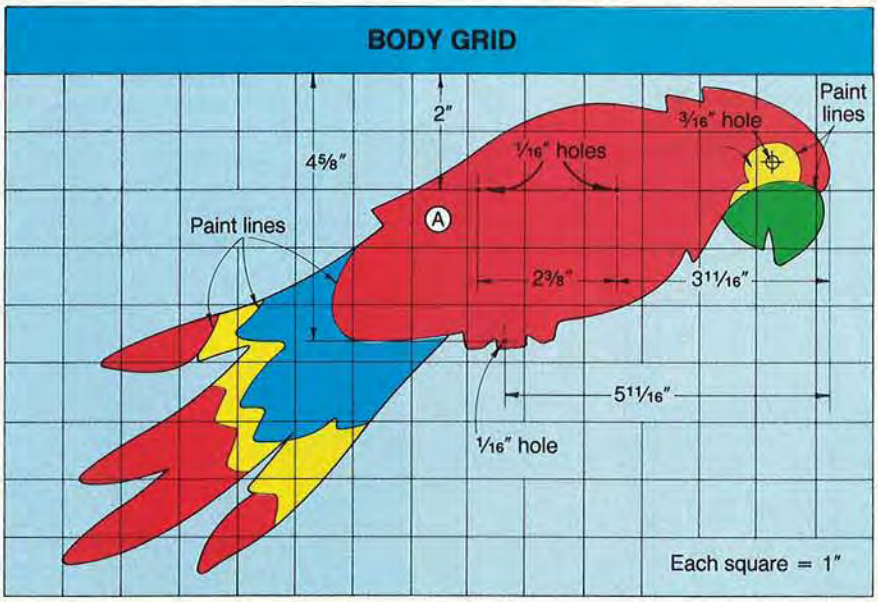
**2** Using a square, a straightedge, and a pencil, draw a 1" grid (1×1" squares) on each piece of paper. Using the Body and Wing Grid Patterns shown *below* as guides, lay out the shape, the paint lines, and the hole centerpoints of the parrot body on the 9×15" grid. Do the same for the wing on the 8×14" grid. To do this, mark the points where the pattern outline crosses each grid line. Draw lines to connect the points.

**3** Carefully cut each paper pattern to shape with a scissor.





Key ring
1/16" holes 1/4" from each end of dowel
BB split shot
1/4" dowel 9 1/2" long
Finished length from split shot to split shot is 13"
14-lb. fishing line
3/16" hole
1/16" hole
B
B
A
Finished length from A to dowel is approx 8".
1/16" hole
1" diam. dowel or plug 3/8" long

**Using the templates, trace the outlines onto the plywood.**



**This whimsical design comes to us from Don Zacharias, one of our Canadian readers from Vancouver. Don has made an astonishing 5,000 of these feathered friends, and tells us that "people can't resist pulling the line to set these brightly colored birds in motion. You never grow tired of it."**

**4** Cut a piece of ¼" plywood to 12×24" (we used lauan for our indoor model and exterior plywood for the outdoor version). Position and trace the patterns on the plywood as shown in the photo at *left*. With an awl, poke through the marked centerpoints on the patterns and into the plywood.

**5** Cut the body and wings to shape on a scrollsaw or bandsaw. Sand a bevel on the wing edges that will butt against the parrot body (see the Knot Detail for reference). Next, sand a slight round-over on all edges of each piece. Drill the 1/16" string holes and a 3/16" eye hole where indented.

## PAINT THE PIECES TO MAKE POLLY PRETTY

**1** Paint the three pieces with two coats of primer (use an exterior primer if you intend to display the parrot outdoors, or see the Buying Guide for our source of supplies). Allow the paint to dry.

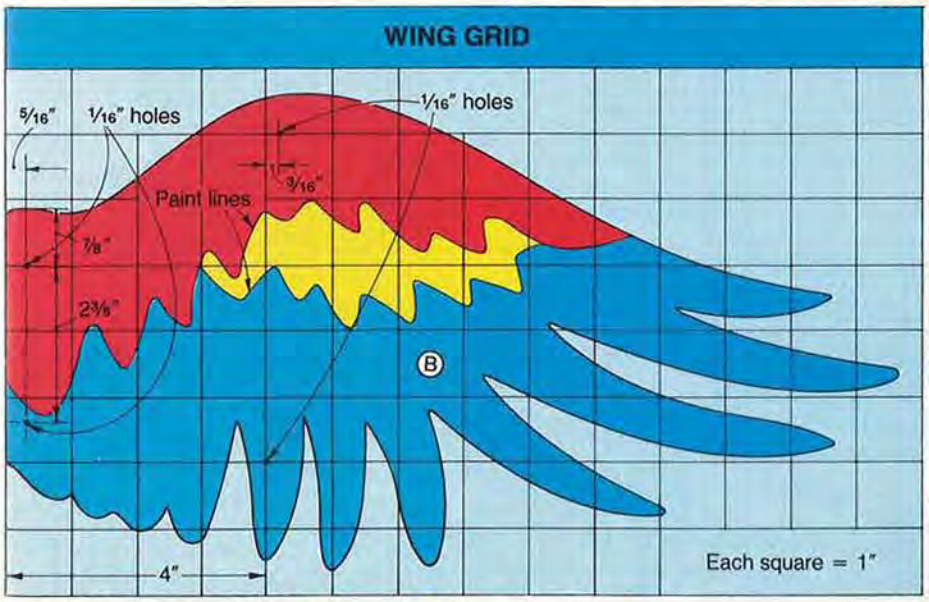
**2** Using carbon paper and the grid patterns as guides, lightly trace the paint lines on both sides of each wing and the parrot body.

**3** With a small brush, paint all the blue areas. Clean the brush and wait for the blue paint to dry. Then, paint the yellow and later the red areas. Finally, paint the beak green.

## STEADYING THE WINGS FOR A SMOOTH FLIGHT

**1** Connect the wings to the body as shown on the Knot Detail. Snip off the excess fishing line with a fingernail clipper.

**Hold the parrot upright, thread the lines through the wings, and crimp the split shot in place. Secure each split shot with instant glue.**




**2** Cut a ¼" dowel to 9½" long. Drill 1/16" holes through the dowel ¼" from each end.

**3** Follow steps 1 through 5 on the drawing on page 86 to form the line-support assembly. (After positioning and crimping each split shot with a needle-nosed pliers, we put a drop of instant glue on the split shot. The instant glue prevents the fishing line from slipping through the split shot.)

**4** Now, as shown in the photo at *left*, hold the parrot body upright in a handscrew clamp, and follow Step 6 on the drawing on page 86 to connect the line-support assembly to the parrot wings.

**5** Cut a 1"-diameter plug from thin stock, or cut 3/8" off the end of a 1"-diameter dowel. Drill a 1/16" hole through it, and suspend it on fishing line 8" below the parrot body.

***Supplies:*** 14-lb. monofilament line, instant glue, PSS-BB split shot (available at fishing supply stores), key ring, primer, paint.

## BUYING GUIDE

● **Parrot kit.** Full-sized patterns and supplies for three parrots. 20 yards of line, 21 split-shot sinkers, 3—¼"-diam. by 9½" birch dowels, 3—½" key rings, 2 ounces each of red, green, blue, and yellow acrylic paints. $14 ppd. for kit no. 8358 from Meisel Hardware Specialties, P.O. Box 70, Mound, MN 55364.

## FREE PATTERN OFFER

**Full-sized parrot body and wing pattern.** Just send a self-addressed, stamped, No. 10 business envelope to: Parrot Patterns, *WOOD*® Magazine, Locust at 17th, Des Moines, IA 50336. Offer expires October 15, 1989.

Project Design: Don Zacharias, Paradise Design Studio, Vancouver, B.C., Canada
Photographs: Jim Kascoutas
Illustrations: Kim Downing; Bill Zaun

Craig Lossing

# TIP-TOP TOPS

## GIVE THIS PATTERN A SPIN

Craig Lossing markets at crafts fairs from his lake-dotted home state of Minnesota to sunny Arizona. Although he specializes in bowls, this Minneapolis native quickly notes that few people leave his booth without giving one of his tops a spin. Priced at less than $5 apiece, his top sales often pay more than a third of his exhibit fee.

Although the shapes of his two most popular sellers resemble each other somewhat (see the full-sized patterns at *right*), Craig creates distinctiveness by experimenting with several types of woods. "Domestic woods such as ash, walnut, and maple are lighter and easier for younger hands to spin," Craig notes. "Exotic woods such as cocobolo, bocote, and ebony tend to be heavier, spin longer, and have more dramatic grain."

### HOW CRAIG MOUNTS AND TURNS THE TOPS

This creative woodturner starts by cutting a piece of stock to 2" square by 5" long. (If you don't have stock this thick, laminate thinner stock to size.) Next, he marks diagonals on one end to find center, drills a pilot hole at the centerpoint, and threads the turning square onto a screw center.

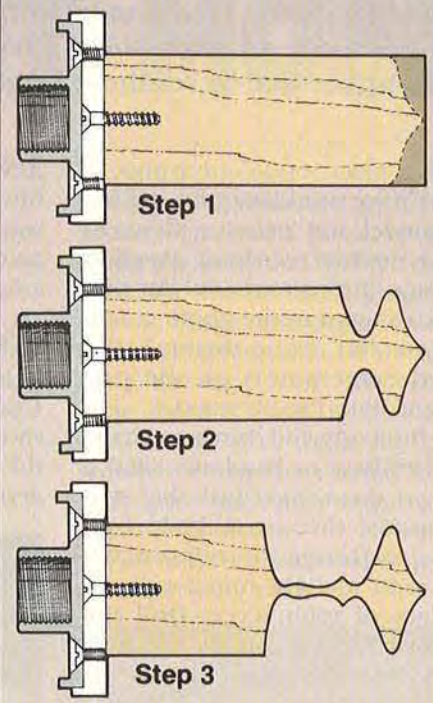
With a ½" gouge—the only tool he needs to fashion the tops—Craig turns the square round. As shown in Step 1 on the three-step drawing at *right*, Craig turns and sands the bottom. Then, as shown in Step 2, he shapes and sands the disc. "It's important to sand after shaping each portion," Craig states. "If you wait until the very end to sand, it's easy to snap the thin handles."

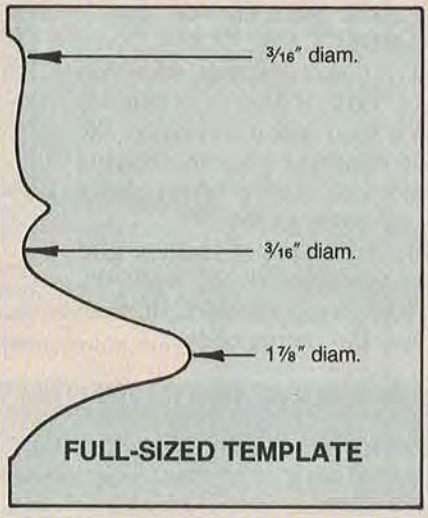
Finally, Craig turns the handle. "Rather than apply tool pressure directly against the handle, I angle the tool and direct some pressure toward the headstock to lessen the chance of breaking the handle," Craig says. Then, he carefully sands the handle and parts the top from the faceplate. Craig finishes his tops with mineral oil.

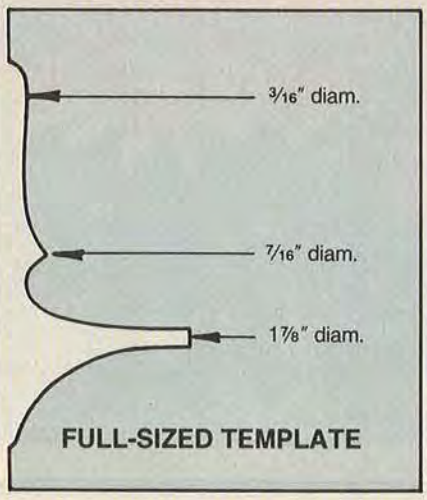
### TAKING IT OUT FOR A SPIN: IT'S ALL IN THE FINGERS

"You'll get a longer spin time using your thumb and middle finger rather than your weaker index finger," Craig claims. "Also, with a bit of practice, you can spin these tops on their handles."

Print this article




**Another in a collection of patterns from the nation's top woodturners**

Photographs: Jim Kascoutas; Gail Space
Illustrations: Kim Downing; Bill Zaun

Project Design: Craig Lossing, 1768 Norfolk Ave., St. Paul, MN 55116

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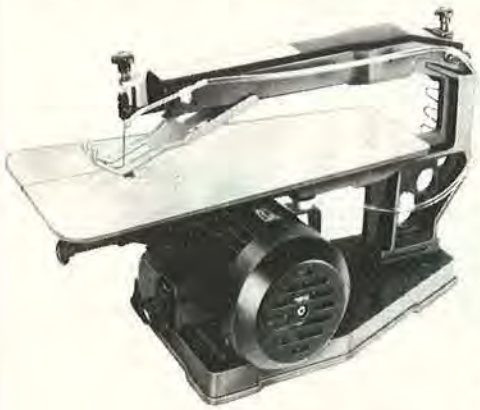

This versatile machine makes cutting intricate wood patterns easy - **Its great for making toys, jewelry, puzzles, fretwork**, etc. The blade is driven on both up and down stroke with a smooth cutting parallel rocker arm system that avoids blade breakage and **creates a smooth finish that eliminates sanding.** The Super 15" Scroll Saw is easy to set-up and use and is made with a **cast construction that insures durability.**

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- **Blades** - uses 5" standard & pinend
- **Stroke length** ..... 3/4"
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- **Cutting speed** ..... 16000 Cuts/min
- **Thickness of stock** .... 3/16" to 6"
- **Size** ..... 15-1/2"HX22"WX21" Bed
- **Max Depth of cut** ..... 3/16"
- **Machine Weight** ..... 65 Lbs.

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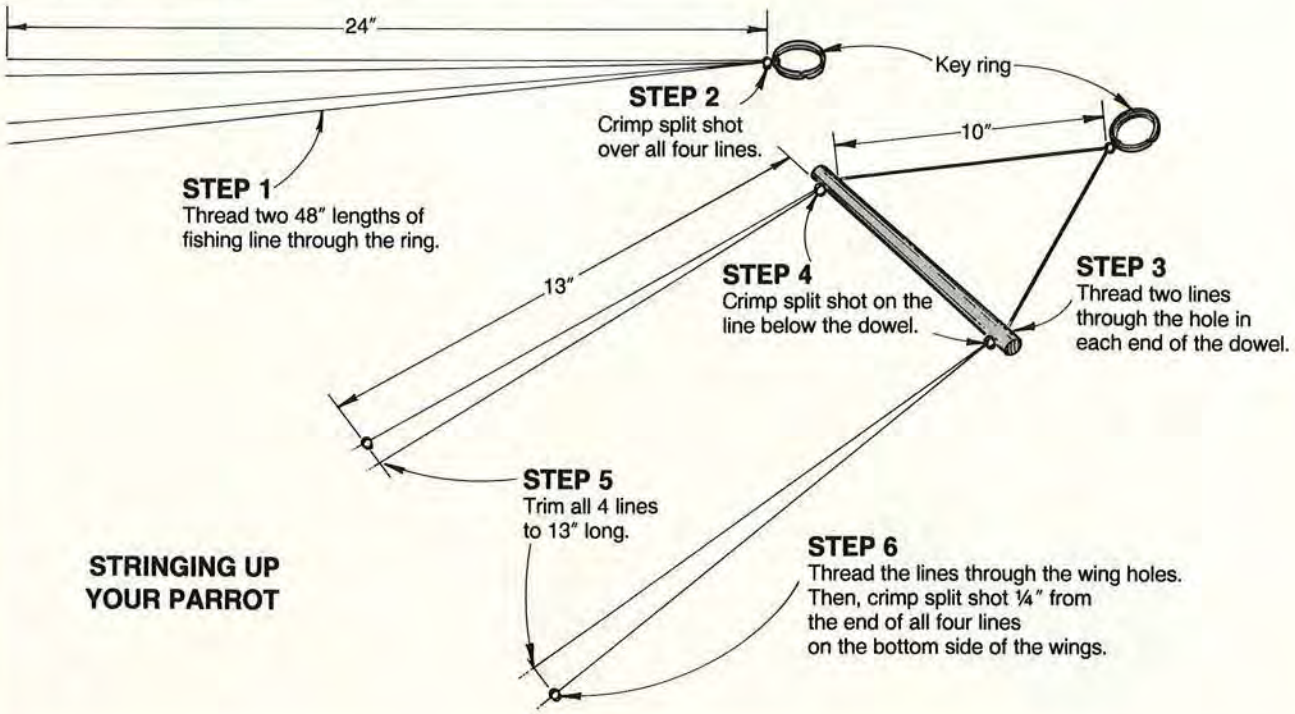
*Continued from page 83*

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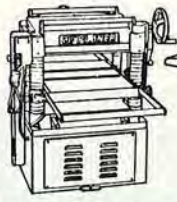

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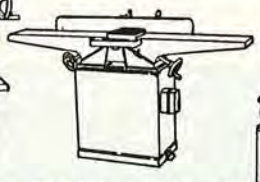

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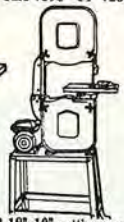

2HP, 18"x10" cutting capacity, 18" tilting table, adj. fence, 680 RPM, 1½" blade capacity, 380 lbs.

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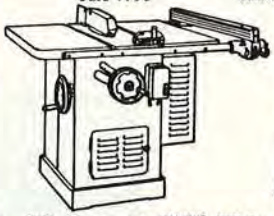

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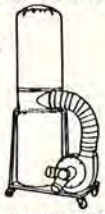

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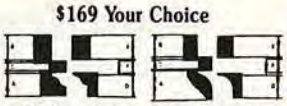

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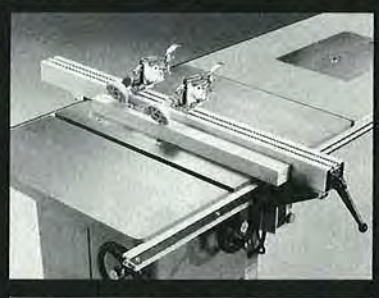

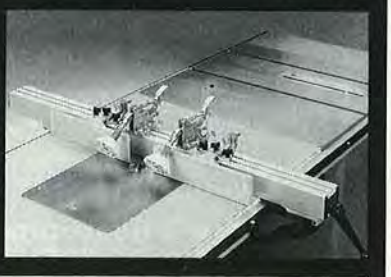

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# WE'RE TALKIN'

*Continued from page 79*

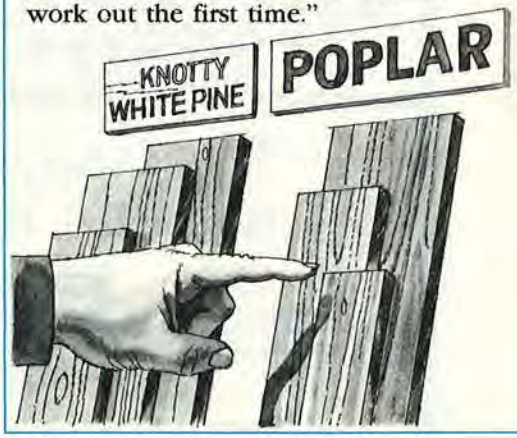
its rough state and ⅛" was surfaced off both sides to make it a 1¾"-thick board, and so on. We carry up to 16/4 boards (4" boards surfaced to a thickness of 3¾").

According to National Hardwood Lumber Association (NHLA) specifications, the idea that dressed boards are always ¼" less thick than their unsurfaced thickness works only for 7/4 and thicker boards. For instance, a 6/4 board can be surfaced to a minimum of 1⅝" thickness, a 5/4 board must be at least 1⅛" thick after dressing, and a 4/4 board cannot be surfaced to less than 13⁄16".

Because few mills cut hardwood lumber less than 4/4 thick, you will pay the price of 4/4 stock, plus surfacing charges, for any board 13⁄16" thick and less. As Bob Garst, assistant manager of the NHLA puts it: "When you buy wood, you're buying two things: the wood and the modification to that wood."

**6 I'm just getting started in woodworking; what are some good but inexpensive woods to work with?**

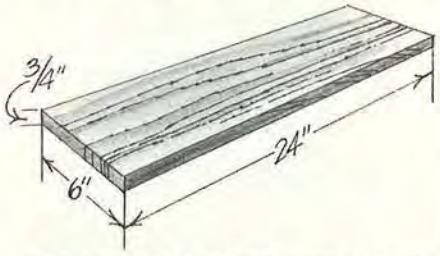
"When I feel a woodworker doesn't have the necessary equipment or expertise for a given project, I steer him toward poplar at about $1.25 per board foot, or knotty white pine at about $1 per board foot," says Bob Carr of Educational Lumber Co. in Asheville, N.C. "Both of these woods work well and have good strength, and poplar is fairly stable. Neither will break most pocketbooks if a project doesn't work out the first time."



**7 How do I calculate board footage?**

Some woodworkers order their wood by the board foot and others simply take a cutting diagram to their supplier. In any case, the hardwood outlet will charge you by board footage, so it helps to know how to figure it out.

"I get this question fairly often," said Dick D'Abate, "and the answer




is pretty simple. First, you take the thickness of the board before the board was surfaced (1" for a 4/4 board), multiply that figure times length in inches, then muliply that figure times width in inches, and divide by 144. For instance, a ¾" board that's 6" wide and 2' long started as a 1"-thick board so the equation goes: 1"×6"×24" equals 144; divide 144 by 144 and you have one board foot."

**8 What woods are waterproof?**

For outdoor projects, Dick Boak recommends these woods: western red cedar, true mahoganies, redwoods, and teak. Avoid luan—it lacks the water-repelling tight grain of true mahoganies.

*Continued on page 90*

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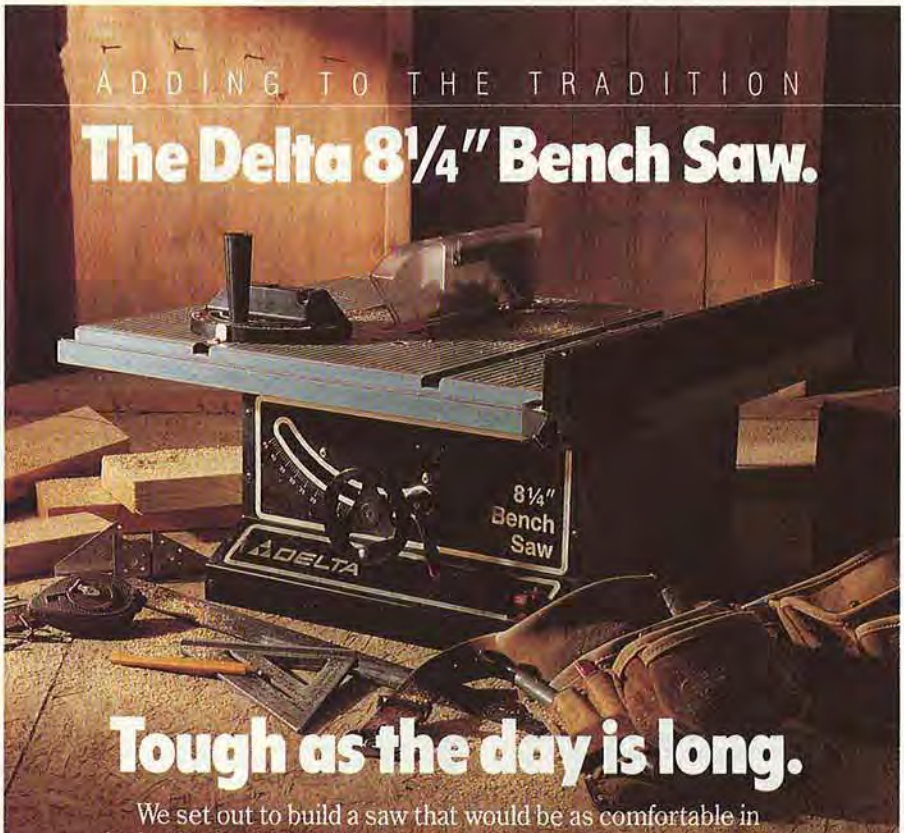
**The Delta 8¼" Bench Saw.**

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## WE'RE TALKIN' HARDWOOD

*Continued from page 89*

**9 How is lumber graded?** Most hardwood outlets that cater to the home woodworker sell only firsts and seconds (usually combined as one grade called FAS)—the highest grade for hardwood lumber. In

the FAS grade, boards will yield a minimum of 83⅓ percent clear cuttings at least 3"×7' or 4"×5'. Common uses for these boards include: quality furniture, interior trim, and solid wood moldings.

In the next grade down, Selects, one face is FAS, the other is No. 1 common (see *below*).

No. 1 common boards will yield from 66⅔ to 83⅓ percent clear wood cuttings at least 3"×3' or 4"×2'. They're best suited for furniture and cabinets.

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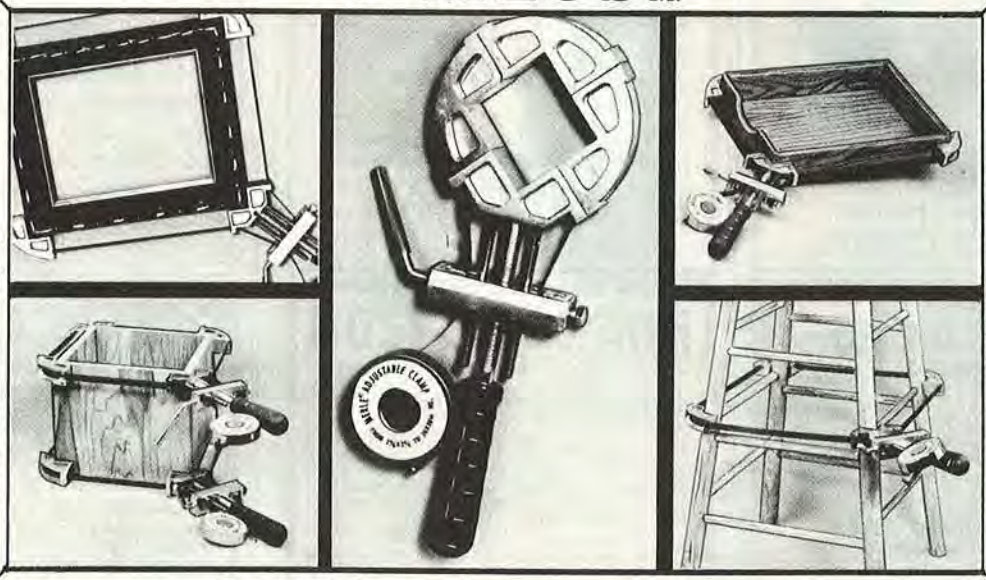

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*Continued from page 49*

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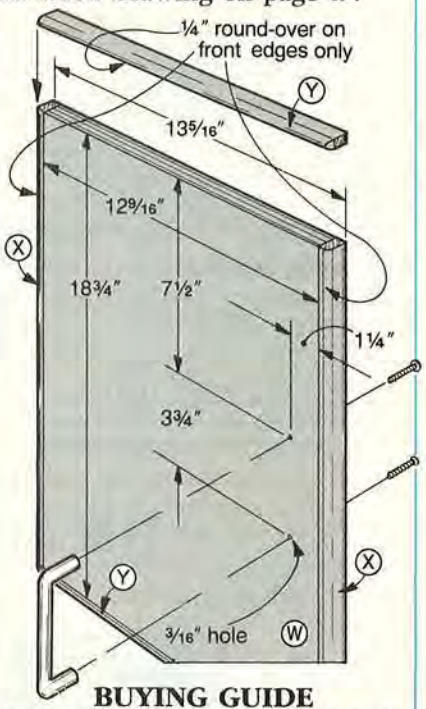


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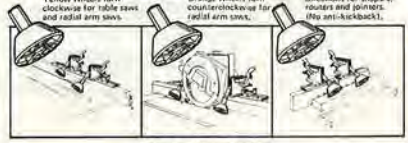

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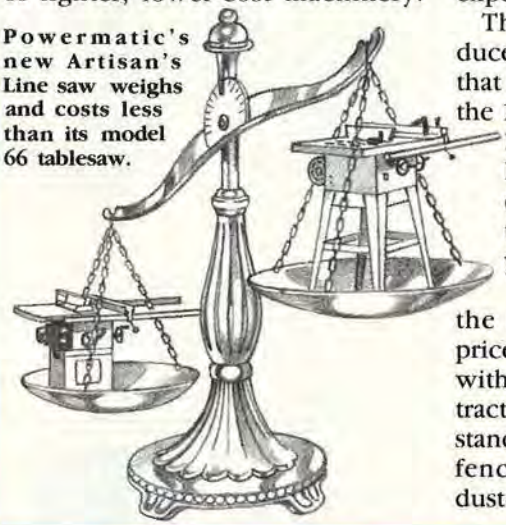
# TOOL INDUSTRY INSIDER

## POWERMATIC COURTS THE HOME WOODWORKER

Print this article

If you've excluded Powermatic equipment from your tool-purchasing decisions because you thought the equipment was too expensive, the McMinnville, Tenn., company would like to change your mind. A name synonymous with heavy, high-quality, top-dollar equipment, Powermatic wants to make its mark on the home stationary power tool business with its new Artisan's Line of lighter, lower-cost machinery. The equipment will cater to the home woodworker, especially the younger craftsman with limited funds and space.



**Powermatic's new Artisan's Line saw weighs and costs less than its model 66 tablesaw.**

"We see a lot of growth in the home end of the woodworking business," said Bob Aslup, a Powermatic product manager. "So we found out what things woodworkers expect in a line of smaller, less-expensive machines."

The result: Powermatic introduced a Taiwanese-made tool line that includes a scrollsaw similar to the 15"-models already imported by Delta, Grizzly, Jet, and others. Powermatic plans to market a drill press, shaper, and contractor's-type saw and two more as-yet-unannounced machines.

Powermatic has positioned the 10" tablesaw, with a selling price of about $640, to compete with Delta's contractor's saw. To attract buyers, Powermatic includes standard features such as a Vega rip fence, retractable casters, and a dust-collection shroud.

## SEARS SHAKEUP—WILL IT AFFECT THEIR TOOLS?

In late-1988, executives at Sears, Roebuck and Co., looking to make their company grow, increase profits, and fend off takeover attempts, announced sweeping changes aimed at making Sears competitive with discount chains. In order to keep up with the likes of K mart, Target, Toys R Us, and other discounters, Sears will revamp its entire system of merchandising, distribution, and inventory control.

"Twenty years ago, Sears didn't have that much competition, but now we have so much competition from specialty retailers that we have to do something about it," said Mike Mangan, power-tool product manager for Sears.

To test its new approach, Sears opened Brand Central departments at 13 stores in Indiana and four in Louisville, where customers can choose from the same name-brand electronics and appliances available at other stores. Will the Brand Central concept spread to Sears' tool departments as well?

"The Brand Central idea is being explored in the tools and home improvement departments," Mangan told *WOOD®* magazine, "but nothing definite has been set. We'll probably go with some national brands in small products such as fasteners, for example, so we don't have to make a big investment in our own packaging and inventory." Will the Craftsman brand survive this upheaval? "We won't throw out the Craftsman name—it's an institution—one that woodworkers know they can turn to for quality and service," Mangan said.

Illustration: Jim Stevenson

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# THE CARVER'S SON

## A STORY OF WHAT COULD HAVE BEEN AND WHAT MIGHT BE

**"One father is more than a hundred schoolmasters."**
George Herbert, 1651

*Anthony Merano's son took little interest in his father's work, which was just the way the old man wanted it. The elder Merano had immigrated to America from northern Italy in 1926 as a penniless apprentice woodcarver. He had worked hard, and eventually supplied fine architectural carving to builders across the nation.*

*Although Merano represented the fourth generation of woodcarving in his family, he thought there would be little demand for this old-fashioned craft in the space-age United States. That's why he sent his only son to nothing but the best schools, and eventually guided him to aerospace engineering.*

As the years passed, the old, widowed woodcarver developed heart trouble and his son brought him to live with his family. When the elder Merano's health declined, he finally put away his carving tools. However, people continued calling for his work. Since father and son shared the same name, it soon became a family joke to answer calls for "Anthony Merano" by asking, "Do you want the woodcarver or the rocket scientist?"

The family joke went on until a slump hit the aerospace industry. Management employees suffered, too, and Anthony Merano, Jr., now at middle-age, lost his job. He tried to find work, but he simply could not compete with the younger people trained in the latest technology. His feelings of worthlessness increased. When his father died, the son's spirit was all but broken.

Sitting at the bottom of the basement steps one afternoon, pondering items to unload at yet another yard sale, Anthony Merano's gaze fixed on his late father's tool chest. The key was fastened to the lid with masking tape. Suddenly curious, he pulled the key free and unlocked the lid. Opening the chest revealed a sight no more comprehensible to him than the inner workings of a typewriter. There must have been 100 handles poking up from their racks.

He pulled out a gouge, then a surprisingly heavy mallet of chocolate- and butterscotch-colored wood. The tools felt good in his hands. Striking them together in the air, he heard the sound that filled so much of his cherished childhood.

Glancing back in the chest, he noticed bundles of wooden blocks, in various stages of carving, bound together with torn cloth strips. He set the tools aside, untied one of the sets, and spread the blocks out on his thighs. There were six blocks in this set, each measuring 6" square and 1" thick. He studied the two rows, then began to laugh.

The son had wondered what his father was doing in the cellar those

last few weeks. The answer lay before him. Here, in six precise steps, was the technique for carving a floral rosette. The other bundles held the steps for moldings, panels, and the full range of his father's work. That night he just looked, but things would change in the weeks and months that followed.

The following day, Anthony cleared off his father's carving bench, laid out the series of rosette blocks, and tried to match the tools to the work. The first block had the flower penciled on it with flawless sweeps of the compass. On the second block, his father had outlined the penciled design with knife cuts and a narrow groove. He searched in the chest to find a tool that matched the groove.

With the first block clamped in the vise, he set the V-shaped veiner (Anthony had looked up its name in a tool catalog) on the basswood block. He guided the tool around the curve of a petal, daring only to take the shallowest cut. The tool took off on its own, tracking into the grain and through the outline of an adjoining petal. He backed off and took a deeper, more forceful cut. This time, the edge caught under the grain and quickly tore off a splinter.

He stopped again and analyzed the problem. Parts of the sharp, V-edge led the tool with the grain, and other portions led the tool against the grain. But, whichever way he went, one edge or the other of the tool was always cutting against the wood's grain.

Then he remembered how his father had worked. He removed the block from the vise and held it pressed against a peg in the bench top. Now, he could quickly turn the block to let him approach the cut from the best angle to the grain. He finished outlining within the hour, anxious to copy the next block, where his father had struck the grooves with deep incisions.

Here, his father deepened each portion of each curve by striking down with the gouge that closely matched the curvature at that point. This part of the work went fast, and the son wondered if he could skip the first step. He tried tapping in without the initial valley cut, but the surface chipped to the side. No, his father had a purpose for each step.

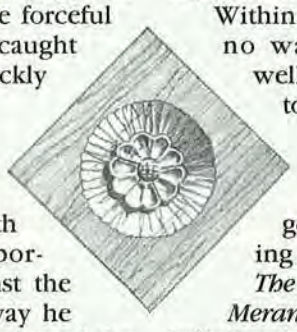
The fourth block varied radically from the first three. Here, his father had swept away the background with long strokes of the gouge. He copied the gouge-work.

By that evening, the rocket scientist had copied the roughly shaped hollows of the wooden petals on the fifth block. But, he thought he had carved long enough, and that he could finish it with sandpaper.

Wrapping the sandpaper around his fingers to get in the hollows, he rubbed and rubbed all over, working by feel and scarcely looking at his carving. Finally, he held it up to the light. All the detail that gave interest to the piece had melted away. He knew he had made a mistake, but he felt great.

Within the year Anthony Merano was carving reasonably well. He still had a long way to go in judging proportion and working with any speed. But, he *was* working, he was good, getting better, and growing confident.

*The phone rang. "Anthony Merano," he answered. "Oh, hello" came the voice on the other end. "I'm sorry, is this the rocket scientist or the wood carver?" Anthony Merano, now a fifth-generation woodcarver, didn't hesitate.*



**By Roy Underhill**

*Master housewright at Colonial Williamsburg and host of the popular PBS series* The Woodwright's Shop, *Underhill is also an author and lecturer.*

Illustrations: Jim Stevenson

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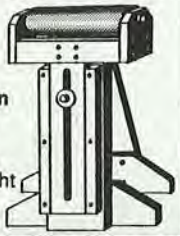

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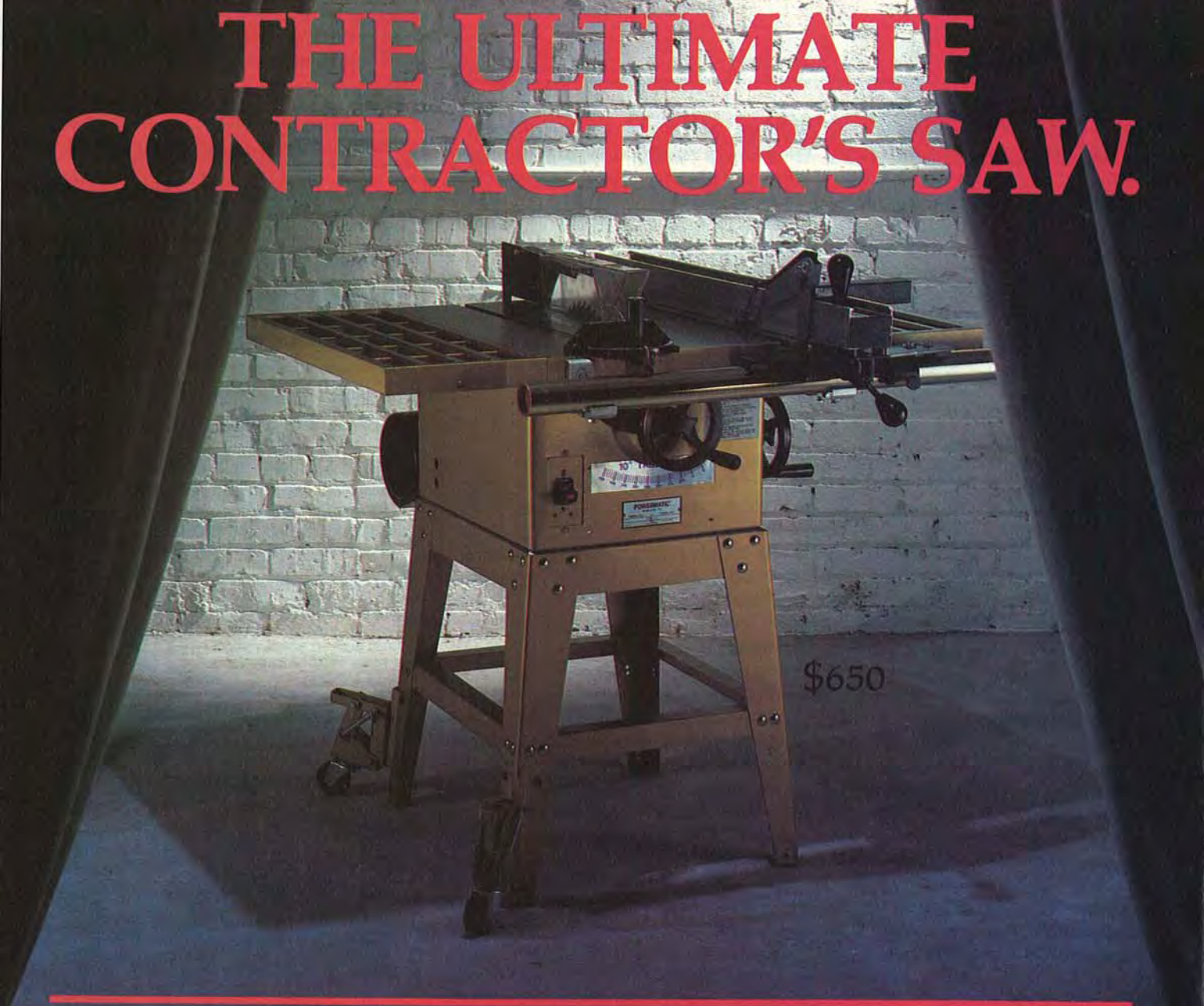


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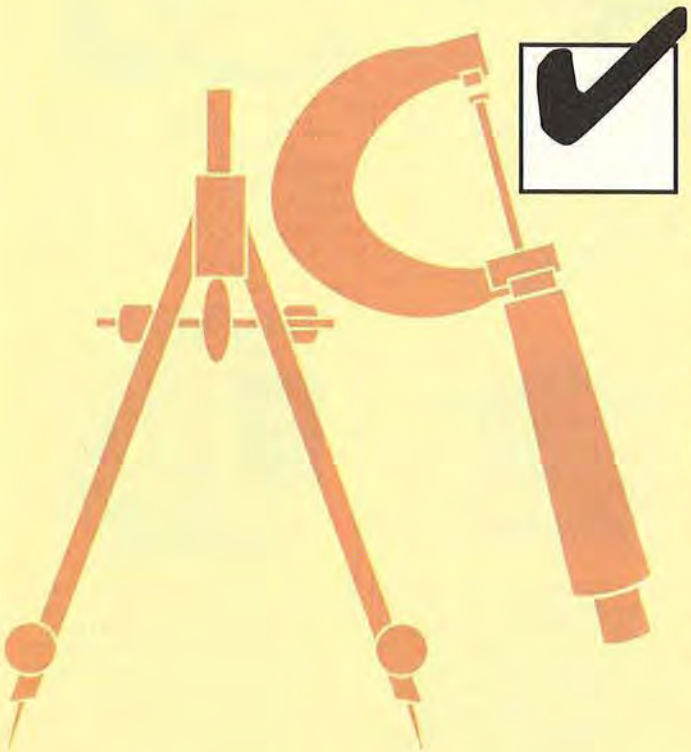

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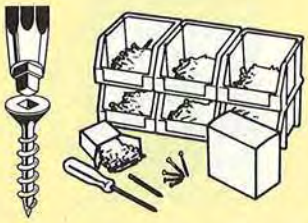

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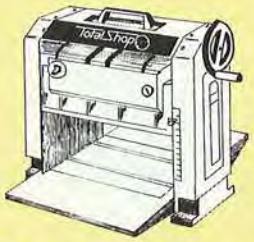


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☐ Powermatic has recently introduced the new Model 63 Artisan's Saw. The 10" Tilting Arbor Saw features a 1½ horse rear-mounted induction motor with modular wiring system, a deluxe T-slot miter gauge, a spacious cast iron top with cast iron open grade extensions, and a built-in dust collector shroud. For more information call or write POWERMATIC, Morrison Road, McMinnville,TN 37110, 1-615-473-5551.

☐ Everybody loves TEDDY BEARS, especially if they have been handcrafted by you! Create new, three-dimensional wooden EGG CRITTERS™ – ten unique designs – from our collection of full size patterns and instructions. Enjoy this new woodcraft technique plus our country woodcraft pattern catalog for only $6.00. THE WINFIELD COLLECTION, 12044 Parkin Lane, Fenton, MI 48430.

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☐ Wood Identification Kit. What better gift for the serious woodworker than a collection of 50- 4" x 9" veneer samples of the world's choicest woods. We have also INCLUDED the illustrated book "FINE HARDWOODS SELECTORAMA" showing 174 species of woods. This combination set of samples and book is only $20.45 ppd. CONSTANTINE'S, 20504WD Eastchester Road, Bronx, N.Y. 10461.

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☐ Master Screwdriving Set Quick-change magnetic insert bit set – perfect gift for professional or do-it-yourselfer. Includes hand driver, bit holder for power driving and ¼" square drive socket adapter. 26 Phillips, slotted, Torx, square recess, clutch and Allen bits included. Retail approximately $37.50. VERMONT AMERICAN TOOL CO., P.O. BOX 340, Lincolnton, NC 28093-0340. 1-704-735-7464.

☐ The RBI Hawk Precision Scroll Saw. America's best selling scroll saw can give you the capabilities you need at a price you can afford. RBI Hawk 220 (20"Throat) available at special price of $699.00. Call or write: STEVE H. WALL LUMBER CO., Route 1, Box 287, Mayodan, NC 27027. 1-919-427-0637

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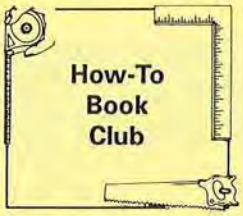


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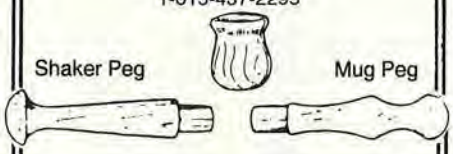

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# Information

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**WOOD MAGAZINE, June 1989**
**Dept. MJWO89**
**P.O. BOX 5103**
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## DELTA BENCH TOP TOOLS

| Model | | List | Sale |
|---|---|---|---|
| 23-700 | Wet/dry grinder | 201 | 139 |
| 23-680 | 6" bench grinder ¼ H.P. | 81 | 62 |
| 23-880 | 8" bench grinder ½ H.P. | 136 | 99 |
| 23-980 | 10" bench grinder 1 H.P. | 246 | 215 |
| 11-950 | 8" drill press | 164 | 125 |
| 14-040 | 14" drill press | 313 | 259 |
| 40-150 | 15" hobby scroll saw | 178 | 125 |
| 28-160 | 10" hobby band saw | 185 | 135 |
| 31-050 | 1" belt sander 2.0 amp | 93 | 69 |
| 31-460 | 4" belt/6" disc sander | 178 | 125 |
| 31-340 | "NEW" 1" belt/8" disc sander | 226 | 159 |

## DELTA STATIONARY

| | | | |
|---|---|---|---|
| 34-761 | 10" unisaw 1½ H.P. | 1579 | 1199 |
| 34-740 | Super 10" motorized table saw | 690 | 399 |
| 34-429 | 10" tilting arbor bench saw 1½ H.P. | 1479 | 999 |
| 28-243F | 14" band saw w/stand, no motor | 621 | 419 |
| 33-990 | 10" radial arm saw | 727 | 555 |
| 11-072 | 32" radial drill press | 487 | 375 |
| 37-280 | 6" motorized jointer | 440 | 335 |
| 50-179 | ¾ H.P. 2 stage dust collector | 435 | 339 |
| 50-180 | 1 H.P. dust collector | 535 | 425 |
| 50-181 | 2 H.P. dust collector | 760 | 615 |
| 37-154 | Deluxe DJ-15 6" jointer w/¾ H.P. motor | 1288 | 979 |
| 33-050 | "NEW" 8¼" Sawbuck | 742 | 559 |
| 34-330 | "NEW" 8¼" Table Saw 13A | 321 | 245 |
| 34-670 | 10" motorized table saw | 437 | 325 |
| 34-985 | ¼ H.P. stock feeder | 698 | 545 |
| 28-560 | 16" 3 wheel band saw | 546 | 355 |

## MILWAUKEE TOOLS

| | | | |
|---|---|---|---|
| 0395-1 | "NEW": 9.6V cdlss. drill comp. w/case | 264 | 159 |
| 0224-1 | ¾" drill 4.5A magnum | 179 | 110 |
| 0234-1 | ½" drill 4.5A mag 0-850 rpm | 189 | 105 |
| 0244-1 | ½" drill 4.5A mag 0-600 rpm | 189 | 105 |
| 0222-1 | ⅜" drill 3.5A 0-1000 rpm | 159 | 95 |
| 0228-1 | ⅜" close quarter drill | 154 | 90 |
| 0375-1 | ⅜" close quarter drill | 208 | 119 |
| 0379-1 | ½" close quarter drill | 243 | 139 |
| 0212-1 | ⅜" cordless drill w/spd. | 263 | 149 |
| 6539-1 | Cordless screwdriver 190 rpm | 108 | 64 |
| 6540-1 | Cdlss. screwdriver w/bits & case | 137 | 89 |
| 6546-1 | Cdlss. screwdriver 200 & 400 rpm | 120 | 72 |
| 3102-1 | Plmbrs rt angle drill kit | 295 | 175 |
| 3002-1 | Electricians rt angle drill | 290 | 175 |
| 5399 | ½" D-hdle ham drill kit | 299 | 179 |
| 1676-1 | H.D. Hole Hawg w/cs | 395 | 229 |
| 6511 | 2 sp SawZall w/cs | 209 | 119 |
| 6405 | 8¼" circle saw | 209 | 120 |
| 6750-1 | Drywall gun 0-4000 4.5A | 149 | 89 |
| 6798-1 | Tek screwdriver | 173 | 105 |
| 6507 | TSC SawZall w/case | 219 | 129 |
| 6170 | 14" chop saw | 430 | 275 |
| 6012 | Orbital sander 3⅝"x7⅜" | 179 | 105 |
| 6014 | Orbital sander 4½"x9¼" | 189 | 110 |
| 6305 | 6¼" cordless circle saw | 284 | 165 |
| 6753-1 | Drywall gun 0-4000 3.5A | 129 | 83 |
| 8977 | Var. temp heat gun | 109 | 70 |
| 0214-1 | ⅜" v. spd. cordless drill | 220 | 125 |
| 5397-1 | ⅜" v. spd. hammer drill kit | 227 | 135 |
| 5371-1 | ½" v. spd. hammer drill kit | 313 | 179 |
| 3107-1 | ½" v. spd. rt angle drill kit | 305 | 179 |
| 6754-1 | Drywall gun 0-4000 4.5A | 179 | 110 |
| 6747-1 | Drywall driver-0-2500 | 149 | 87 |
| 0230-1 | ⅜" drill 0-1700 rpm | 169 | 99 |
| 3300-1 | ½" v. spd. magnum rt angle kit | 289 | 179 |
| 5620 | Router 1 H.P.—8 amp | 289 | 169 |
| 5660 | Router 1½ H.P.—10 amp | 299 | 179 |
| 5680 | Router 2 H.P.—12 amp | 350 | 205 |
| 5455 | ⅞" polisher 1750 rpm | 199 | 125 |
| 5535 | 7" polisher 2800 rmp | 209 | 129 |
| 6215 | 16" chain saw | 280 | 189 |
| 8975 | Heat gun | 85 | 55 |
| 6366 | 7¼" circular saw | 198 | 112 |
| 6368 | 7¼" circular saw w/cse | 226 | 129 |
| 0216-1 | 2 spd cordless drill Hi-torque | 222 | 145 |
| 0235-1 | ½" drill keyless chuck mag | 199 | 115 |
| 6016 | ¼ sheet pad sander | 75 | 44 |
| 6145 | 4½" grinder 10,000 rpm | 149 | 95 |
| 8950 | 8 gal wet/dry vac | 205 | 145 |
| 8955 | 10 gal wet/dry vac | 279 | 189 |
| 0239-1 | ½" drill keyless chuck | 189 | 114 |
| 6749-1 | Drywall gun 0-2500 4.5A | 189 | 115 |
| 6377 | 7¼" worm drive saw | 275 | 155 |

## FREUD SAW BLADES

⅝" Bore—Industrial Grade

CARBIDE TIPPED SAW BLADES

| Item No. | Description | Diam. | Teeth | List | Sale |
|---|---|---|---|---|---|
| LU72M010 | Gen. Purp. A.T.B. | 10" | 40 | 77.49 | 34 |
| LU81M010 | Gen. Purp. TiCh | 10" | 40 | 79.32 | 39 |
| LU82M010 | Cut-off | 10" | 60 | 98.89 | 42 |
| LU84M011 | Combination | 10" | 50 | 85.25 | 35 |
| LU85M010 | Super Cut-off | 10" | 80 | 126.90 | 50 |
| LM72M010 | Ripping | 10" | 24 | 74.22 | 30 |
| LU73M010 | Cut off | 10" | 60 | 91.16 | 37 |
| LU87M010 | Thin kerf | 10" | 24 | 56.90 | 36 |
| LU88M010 | Thin kerf | 10" | 60 | 69.90 | 43 |
| PS203 | Gen'l Purp. | 7¼" | 24 | 31.42 | 15 |
| PS303 | Plywood | 7¼" | 40 | 37.74 | 22 |
| DS306 | 6" Dado - Carbide | | | 158.13 | 95 |
| DS308 | 8" Dado - Carbide | | | 205.89 | 108 |
| F0 | 1¾"x⅝" Biscuits 1000-Qty. | | | | 25 |
| F10 | 2½"x¾" Biscuits 1000-Qty | | | | 25 |
| F20 | 2¾"x1" Biscuits 1000-Qty | | | | 25 |
| FA | Assorts Biscuits 1000-Qty. | | | | 28 |
| WC104 | 4 pce. chisel set w/cse ¼"-1" | | | 39 | 29 |
| WC106 | 6 pce. chisel set w/cse ¼"-1" | | | 52 | 38 |
| WC110 | 10 pce. chisel set w/cse ¼"-1½" | | | 88 | 59 |
| FB100 | 16 pce forstner bit set ¼"-2⅛" | | | 262 | 149 |
| 94-100 | 5 pce router bit door system | | | 260 | 159 |
| JS100 | Biscuit Joinler w/case | | | 285 | 154 |
| EB100 | "NEW" edge banding machine | | | 350 | 209 |

## MAKITA CORDLESS

| Model | | List | Sale |
|---|---|---|---|
| 6700DW | ⅜" var. spd. rev. 7.2v | 123 | 69 |
| 6071DWK | ⅜" var. spd. rev. w/removable batt, 7.2v | 190 | 105 |
| 5090DW | 3⅜" saw w/l, 9.6v | 243 | 125 |
| 5600DW | 6½" circular saw, 10.8v | 317 | 167 |
| 6010DWK | ⅜" cordless drill kit, 7.2v | 155 | 89 |
| 6010SDW | ⅜" cordless drill, 7.2v | 103 | 59 |
| DA3000DW | ⅜" angle drill, 7.2v | 238 | 130 |
| 4390DW | 9.6 volt cdls. recip saw kit | 218 | 124 |
| 6010DL | ⅜" drill w/flashlight, 7.2v | 198 | 113 |
| 6012HDW | 2 spd. driver drill w/clutch & case', 9.6v | 224 | 110 |
| 6710DW | Cordless screwdvr kit, 7.2v | 186 | 103 |
| 6092DW | V/spd. drill, kit complete | 237 | 115 |
| 6093DW | V/spd. drill w/clutch—complete | 248 | 119 |
| 6891DW | Drywall gun 0-1400, 9.6v | 225 | 119 |
| 632007-4 | 9.6 volt battery | 49 | 29 |
| 632092-4 | 7.2 volt battery | 42 | 27 |
| 2012 | BRAND NEW 12" portable planer | 885.50 | 519 |
| 5007N8A | 7¼" saw w/elec. brake | 228 | 119 |
| 5008N8A | 8¼" saw w/elec. brake | 276 | 139 |
| B04510 | ¼ sheet pad sander | 80 | 45 |
| 9900B | 3"x21" belt sander w/bag | 254 | 139 |
| 9924DB | 3"x24" belt sander w/bag | 268 | 139 |
| 9035 | ½ sheet finish sander | 106 | 60 |
| 9045B | ½ sheet finish sander | 216 | 115 |
| 9045N | ½ sht fin. sand. w/bag | 219 | 116 |
| 4200N | 4⅜" circ. saw 7.5 amp | 213 | 114 |
| 5201NA | 10¼" circ. saw 12 amp | 560 | 285 |
| 4301BV | Orb. v/sp jig saw 3.5 amp | 274 | 145 |
| JR3000WL | 2 sp recip saw w/cse | 220 | 122 |
| JR3000V | Vs. recip saw w/case | 224 | 125 |
| LS1020 | New 10" mitre saw | 440 | 229 |
| 9820-2 | Blade sharpener | 354 | 205 |
| 410 | Dust collection unit | 480 | 269 |
| 3705 | Offset trimmer | 255 | 129 |
| 1900BW | 3¼" planer w/case | 198 | 115 |
| 1100 | 3¼" planer w/case | 381 | 225 |
| 9207SPC | 7" sander-polisher | 262 | 145 |
| 3601B | 1¾ H.P. router | 242 | 125 |
| 3700B | ½ H.P. trimmer | 180 | 92 |
| 9501B | 4" grinder, 3.5 amp | 137 | 65 |
| B04530 | 6" round sander | 95 | 57 |
| B04550 | ¼ sheet pad sander w/bag | 85 | 46 |
| DA3000R | ⅜" angle drill | 256 | 138 |
| DP4700 | ½" v/sp w/rev. 4.8 amp | 198 | 109 |
| 6300LR | ½" angle drill w/rev | 325 | 169 |
| 2708W | 8¼" table saw | 474 | 239 |
| 2711 | 10" table saw w/brake | 800 | 450 |
| GV5000 | Disc sander 5" | 109 | 65 |
| 6800DB | 2500 rpm 3.5 amp | 140 | 85 |
| 6800DBV | 0-2500 rpm 3.5 amp | 154 | 89 |
| 6801DB | 4000 rpm 3.5 amp | 140 | 85 |
| 6801DBV | 0-4000 rpm 3.5 amp | 154 | 89 |
| 2030N | 12" planer/jointer | 2970 | 1599 |
| 2040 | 15½" planer | 2470 | 1375 |
| 1805B | 6⅛" planer kit w/case | 646 | 345 |
| JV1600 | var. speed jig saw | 220 | 119 |
| JV2000 | var. speed orb. jig saw | 242 | 127 |
| 5095BA | 5½" circular saw | 211 | 115 |
| 9503BH | 4½" sander-grinder | 153 | 79 |
| 6404 | ⅜" drill 0-2100 rpm, 2 amp | 102 | 60 |
| 6510LVR | ¾" drill rev. 0-1050 rpm | 137 | 72 |
| 6013BR | ½" drill rev. 6 amp | 240 | 125 |
| 5402A | 16" circular saw - 12 amp | 605 | 325 |
| 3612BR | 3 H.P. plunge router | 376 | 185 |
| 9401 | 4"x24" belt sander w/bag | 302 | 168 |
| 3620 | 1¼ H.P. plunge router w/case | 182 | 97 |
| 4302C | V/spd. orb. jig saw | 287 | 145 |
| 5077B | 7¼" Hypoid saw | 248 | 139 |
| LS1440 | 14" Mitre saw | 624 | 409 |
| 2414 | 14" cut-off saw AC/DC | 350 | 195 |
| 5007N8 | 7¼" circ saw 13 amp | 209 | 110 |
| 3612B | 3 HP plunge router sq/b | 376 | 185 |

## SKIL SIZZLERS

| Model | | List | Sale |
|---|---|---|---|
| 5510 | (551) 5½" circ saw | 112 | 92 |
| 5625 | (552) 6½" circ saw | 175 | 115 |
| 5656 | (553) 7¼" circ saw | 132 | 105 |
| 5665 | (554) 8¼" circ saw | 204 | 125 |
| 5750 | (807) 7¼" circ - drop foot | 198 | 122 |
| 5765 | (808) 8¼" circ - drop foot | 216 | 135 |
| 5790 | (810) 10¼" circ - drop foot | 400 | 245 |
| 5825 | (367) 6½" worm saw | 229 | 139 |
| 5865 | (825) 8¼" worm saw | 250 | 149 |
| 4580 | Vari - orbit jig saw w/cse. | 144 | 98 |
| 3810 | 10" Mitre saw | 263 | 195 |
| 595 | 3"x21" sander w/bag 5.5A | 197 | 125 |
| 7565 | ¼" palm sander | 52 | 34 |
| 7313 | 3x18 belt sander 4.5A | 72 | 58 |
| 77 | 7¼" worm drive | 230 | 137 |
| 5350 | 2½ HP circ. saw | 80.99 | 69 |
| 5250 | 2¼ HP circ. saw | 68.99 | 55 |

## XTRA SPECIAL BY SKIL

| | | | |
|---|---|---|---|
| 2735-04 | 12v V.Spd. Cordless Drill comp. w/cse & 2 Batt. | 210 | 128 |

## LEIGH DOVETAIL JIGS

D1258-12—List 314.00—Sale 255.00
D1258-24—List 375.00—Sale 299.00

## HITACHI TOOLS

| Model | | List | Sale |
|---|---|---|---|
| TR6 | Trimmer | 177 | 95 |
| TR8 | Plunge router, 1½ H.P. | 219 | 119 |
| TR12 | Plunge router, 3 H.P. | 354 | 169 |
| C10FA | 10" dlxe. mitre saw | 490 | 265 |
| C8FB | 8½" slide compound saw | 859 | 475 |
| C15FB | 15" mitre saw | 745 | 389 |
| FREUD LU85M015 | - 15" Carb. Bld. 108 Tooth | 181 | 115 |


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## DELTA TOOLS

| | | |
|---|---|---|
| 34-444 | Table Saw Complete w/1½ H.P. motor & stand | 589.00 |
| 33-150 | 8¼" Saw Buck | 499.00 |
| 33-890 | 12" Radial Arm Saw 1½ H.P. complete w/legs | 1139.00 |
| 28-283F | 14" Band Saw w/enclosed stand & ¾ H.P. motor | 599.00 |
| 22-661 | NEW 13" Planer | 1095.00 |
| 17-900 | 16½" Floor Drill Press | 315.00 |
| 40-601 | 18" Scroll Saw w/stand and blades | 679.00 |


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## PIRANHA By Black & Decker

CARBIDE TOOTH SAW BLADE

| Model# | Diameter | #Teeth | List | Sale |
|---|---|---|---|---|
| 73-716 | 6-1/2 | 18 | 13.10 | 7.10 |
| 73-756 | 6-1/2 | 36 | 28.96 | 16.30 |
| 73-717 | 7-1/4 | 18 | 13.14 | 7.10 |
| 73-737 | 7-1/4 | 24 | 16.36 | 9.00 |
| 73-757 | 7-1/4 | 40 | 29.72 | 16.35 |
| 73-758 | 8 | 40 | 42.04 | 24.15 |
| 73-759 | 8-1/4 | 40 | 42.86 | 24.60 |
| 73-719 | 8-1/4 | 22 | 18.96 | 10.60 |
| 73-739 | 9 | 30 | 31.48 | 17.85 |
| 73-769 | 9 | 60 | 66.58 | 38.95 |
| 73-740 | 10 | 32 | 32.98 | 18.95 |
| 73-770 | 10 | 60 | 67.02 | 36.90 |
| 73-715 | 5-1/2 | 16 | 13.00 | 7.30 |

## STYLE 32 PONY SPRING CLAMPS

with coated tips and handles

| Model | Size | List | Sale Ea. | Lots of 25 |
|---|---|---|---|---|
| 3201-HT | 1" | 1.89 | 1.10 | 24.75 |
| 3202-HT | 2" | 2.78 | 1.65 | 37.15 |
| 3203-HT | 3" | 5.22 | 3.00 | 67.50 |
| 3204-HT | 4" | 9.48 | 5.15 | 115.85 |

## ADJUSTABLE HANDSCREWS BY JORGENSEN

| Item No. | Jaw Length | Open Cap | List | Sale | Box of 6 |
|---|---|---|---|---|---|
| #5/0 | 4" | 2" | 12.88 | 7.25 | 40.50 |
| #4/0 | 5" | 2½" | 13.83 | 7.95 | 45.30 |
| #3/0 | 6" | 3" | 14.83 | 8.35 | 47.60 |
| #2/0 | 7" | 3½" | 15.94 | 8.95 | 51.00 |
| #0 | 8" | 4½" | 17.74 | 9.95 | 56.70 |
| #1 | 10" | 6" | 20.29 | 11.40 | 64.95 |
| #2 | 12" | 8½" | 23.29 | 13.00 | 74.00 |
| #3 | 14" | 10" | 29.53 | 17.50 | 99.95 |
| #4 | 16" | 12" | 38.38 | 23.00 | 139.95 |

## STYLE 37 2½" Throat ¼"x¾" JORGENSEN

| Item No. | Jaw Length | List | Sale | Box of 6 |
|---|---|---|---|---|
| 3706 | 6" | 8.86 | 5.75 | 32.50 |
| 3712 | 12" | 9.81 | 6.25 | 35.00 |
| 3718 | 18" | 10.83 | 6.85 | 37.50 |
| 3724 | 24" | 11.83 | 7.35 | 40.00 |
| 3730 | 30" | 13.19 | 8.25 | 45.00 |
| 3736 | 36" | 14.43 | 8.95 | 49.00 |

## PONY CLAMP FIXTURES

| Model | | List | Sale | Lots of 12 |
|---|---|---|---|---|
| 50 | ¾" black pipe clamps | 12.48 | 7.50 | 80 |
| 52 | ½" black pipe clamps | 10.41 | 5.00 | 65 |

## STYLE J, ADJUSTABLE HANDSCREW KITS

| Model | Length Jaws | List | Sale |
|---|---|---|---|
| J04 | 4 | 7.10 | 4.99 |
| J06 | 6 | 8.13 | 5.29 |
| J08 | 8 | 9.12 | 5.69 |
| J10 | 10 | 10.66 | 6.39 |
| J12 | 12 | 13.21 | 7.69 |

## BOSCH

| Model | | List | Sale |
|---|---|---|---|
| 1581VS | Top hdle. jig saw | 235 | 129 |
| 1582VS | Barrell grip jig saw | 220 | 119 |
| | Bosch metal case for above jig saws | 34 | 26 |
| | Bosch blade assortment for jig saws 30 of Bosch's best selling blades | 23.99 | |
| 1942 | Heat gun 650°-900° | 99 | 69 |
| 1272D | 3"x24" B.S. w/bag | 299 | 168 |
| 1273D | 4"x24" B.S. w/bag | 315 | 178 |
| 11-212 | Bulldog ⅜" SDS rotary | 339 | 189 |
| 1196VSRK | ⅜" vs hammer drill | 215 | 110 |
| 1198VSR | ½" vs hammer drill | 229 | 125 |
| 1608 | 5.6 amp lam trimmer | 140 | 80 |
| 1608L | Same as above w/trimguide | 145 | 84 |
| 1608T | 5.6 amp tilt base trim | 159 | 91 |
| 1609 | 5.6 amp offset base trim | 205 | 122 |
| 1609K | Lam installers kit w/1609 Offset base, trimmer tilt base, trimguide, ¼" collet, collet nut, wrenches, hex keys and case | 295 | 165 |
| 1601 | 1 H.P. Router 25,500 rpm | 165 | 99 |
| 1602 | 1½ H.P. Router 25,000 rpm | 199 | 110 |
| 1603 | 1½ H.P. D handle Router | 223 | 125 |

**The famous Bosch 1604 1¾ h.p. Router**
**List $219 Super Spec. $117**

| | | | |
|---|---|---|---|
| 1606 | 1¾ H.P. D hdle. Router | 243 | 135 |
| 3258 | 3¼" planer w/blade guard | 210 | 135 |
| 3258K | 3258 planer w/case | 235 | 149 |
| 3270D | 3"x21" belt sander w/bag 5A | 225 | 135 |
| 1273DVS | Var spd. 4"x24" 6 speed range sander 10.5 amp | 339 | 185 |
| 1611 | 3 H.P. plunge router | 349 | 198 |
| 1611EVS | "NEW" 3 H.P. elec. w/spd. plunge router | 410 | 255 |
| 1651 | 7¼ circ. saw drop foot | 179 | 99 |
| 1654 | 7¼ circ. saw pivot base | 179 | 99 |
| 1922K | Cdlss. jig saw w/case | 239 | 165 |
| 921VSRK | ⅜" cdlss. drill v/spd. w/clutch and case | 235 | 135 |
| 1632VSRK | Recip. saw 8.4A orb. v/spd. | 225 | 129 |
| 11-304 | "The Brute" breaker hammer | 1950 | 1185 |

## BOSTITCH AIR NAILERS

| Model | | List | Sale |
|---|---|---|---|
| N80C-1 | Utility coil nailer | 730 | 399 |
| N80S-1 | Stick nailer | 760 | 409 |
| T36-50 | Sheathing & decking stapler | 550 | 365 |
| N12B-1 | Coil roofing nailer | 725 | 399 |
| N60FN-2 | Finishing nailer | 595 | 335 |
| T31 | Brad nailer | 245 | 145 |

## SENCO AIR NAILERS

| Model | | List | Sale |
|---|---|---|---|
| SFN1 | Finishing nailer 1" - 1¾" | 377 | 288 |
| SFN2 | Finishing nailer 1½" - 2½" | 571 | 435 |
| SN2 | General purpose 1⅞" - 2⅜" | 621 | 465 |
| M2 | General purpose 1⅜" - 2" | 475 | 359 |
| SN4 | General purpose 2" - 3" | 685 | 515 |
| LS2 | Pinner ⅝" - 1" | 351 | 269 |
| SKS | Stapler | 351 | 269 |
| LS5 | Pinner, 1"-1½" | 399 | 305 |
| PW-RFR | Roofer, ½"-1¼" | 351 | 269 |

## WORKMATES By Black & Decker

| Model | | List | Sale |
|---|---|---|---|
| 79-029 | #85, 18# | 63.00 | 39.00 |
| 79-032 | #200, 23# | 103.00 | 65.00 |
| 79-033 | #300, 28# | 117.00 | 70.00 |
| 79-034 | #400, 35# | 152.00 | 98.00 |

## BLACK & DECKER DEALS

| | | | |
|---|---|---|---|
| 1707 | 8½" crosscut mitre saw | 813 | 469 |
| 1166 | ⅜" drill, 4A, 0-2500 rpm | 96 | 55 |
| 2037 | 0-4000 5 amp drywall gun | 160 | 92 |
| 1703 | 10" mitre saw w/73-770 blade | 313 | 169 |
| 2550 | 0-4000 4.5 amp drywall gun | 138 | 87 |
| 4015 | ½ sheet sander 3 amp | 190 | 109 |
| 2600 | ⅜" 0-1200 4.5 amp drill | 125 | 76 |
| 4018 | ½ sheet sander 2.3 amp | 122 | 76 |
| 3047-09 | 7¼" super saw cat w/brake | 282 | 164 |
| 3048-09 | 8¼" super saw cat w/brake | 297 | 174 |
| 3157 | Orb v/spd. jig saw | 202 | 125 |
| 3153 | V/spd. jig saw | 195 | 121 |

## RYOBI SPECIALS

| Model | | List | Sale |
|---|---|---|---|
| JP155 | "NEW" portable 6" jointer/planer | 545 | 329 |
| R500 | 2¼ H.P. plunge router | 326 | 159 |
| TS25IU | 10" mitre saw | 392 | 169 |
| TS25IUS | 10" mitre w/acc. kit & 60 tooth carbide blade | 435 | 199 |
| AP10 | 10" surface planer 13 amp | 820 | 358 |
| RA200 | 8¼" radial arm saw | 515 | 235 |
| RE600 | 3 H.P. plunge router | 398 | 199 |
| R150K | 1 H.P. plunge router w/cse | 205 | 95 |
| BE321 | 3"x21" v/spd. belt sdr. | 259 | 119 |

## PORTER CABLE

| Model | | List | Sale |
|---|---|---|---|
| 630 | 1 H.P. router 6.8 amp | 170 | 110 |
| 690 | 1½ H.P. router 8 amp | 215 | 119 |
| 691 | 1½ H.P. router D hdle | 235 | 133 |
| 536 | 1½ H.P. speedmatic router | 310 | 195 |
| 518 | 3 H.P. 5 speed router | 560 | 339 |
| 520 | 3 H.P. 15 amp router | 510 | 315 |
| 309 | 3.8 amp lam trimmer | 135 | 85 |
| 310 | 3.8 amp H.D. lam trimmer | 190 | 114 |
| 312 | Offset base lam trimmer | 215 | 120 |
| 319 | Tilt base lam trimmer | 221 | 129 |
| 695 | 1½ H.P. router/shaper | 299 | 190 |
| 696 | H.D. shaper table | 165 | 110 |
| 351 | 3"x21" belt sander w/o bag | 215 | 125 |
| 352 | 3"x21" belt sander w/bag | 225 | 125 |
| 360 | 3"x24" belt sander w/bag | 310 | 175 |
| 361 | 3"x24" belt sander w/o bag | 290 | 170 |
| 362 | 4"x24" belt sander w/bag | 325 | 185 |
| 363 | 4"x24" belt sander w/bag | 310 | 179 |
| 7556 | ½" right angle drill | 295 | 175 |
| 315-1 | 7¼" top hdle 13 amp circ saw | 195 | 110 |
| 9315-1 | 315-1 comp. w/cse & carb. bld. | 225 | 125 |
| 617 | 7¼" pushhandle 13 amp | 195 | 110 |
| 9617 | 617 comp. w/cse. & carb. bld. | 225 | 125 |
| 368-1 | 8¼" top handle 13 amp | 205 | 129 |
| 314 | 4½" trim saw 4.5 amp | 205 | 125 |
| 548 | X HD bayonet saw | 255 | 165 |
| 9548 | X HD bayonet saw w/case | 275 | 175 |
| 9629 | Recip saw v/sp 8 amp | 230 | 133 |
| 9627 | Recip saw 2 speed 8 amp | 220 | 125 |
| 656 | ⅜" H.D. vsp drill - Hdl | 185 | 122 |
| 621 | ⅜" H.D. v spd. 0-1000 rpm | 155 | 95 |
| 320 | Abrasive plane 3 amp | 150 | 99 |
| 126 | Porta plane 7 amp | 290 | 164 |
| 9118 | Porta plane 7 amp kit | 325 | 185 |
| 9652 | Versa plane 10 amp kit | 430 | 275 |
| 7545 | 0-2500 drywall gun 5.2 A | 169 | 100 |
| 7540 | 0-4000 5.2 amp gun | 165 | 99 |
| 505 | ½ sheet pad sander | 195 | 105 |
| 7511 | ⅜" v spd. drill 5.2 amp | 185 | 105 |
| 7514 | ½" v spd. drill 0-750 | 195 | 114 |
| 303 | Paint remover | 230 | 149 |
| 304 | 7" disc sander 4000 rpm | 195 | 125 |
| 305 | 7" disc polisher 2000 rpm | 195 | 125 |
| 367 | 3¼" planer 6.5 amp | 225 | 148 |
| 537 | 1½ H.P. D hdle router | 325 | 205 |
| 7548 | Top hdl jig saw 4.8 amp | 215 | 119 |
| 7648 | Barrel grip jig saw 4.8 amp | 210 | 119 |
| 330 | Speed block sander ¼ sht | 97 | 55 |
| 555 | Plate biscuit jointer 5A w/cse | 280 | 165 |
| 345 | 6" saw boss 9 amp | 160 | 99 |
| 5060 | "Stair Ease" stair templet | 194 | 125 |
| 5061 | "Stair Ease" hard wood stair templet | 204 | 135 |
| 659 | 0-4000 drywall gun 4 amp | 130 | 79 |
| 100 | ⅞ H.P. router | 160 | 94 |
| 59381 | Door hanging kit | 229 | 152 |
| 399 | Drywall cutout unit | 110 | 69 |
| 43218 | Drywall cutout unit bit | 6.75 | 5.50 |
| 5008 | Dovetail template kit | 99.50 | 75 |
| 5009 | Mortise & Tenon jig | 54.95 | 40 |
| 5002 | "NEW" stub-rile plastic pipe cutter | 99.95 | 75 |
| 308 | "NEW" laminate slitter | 189 | 135 |
| 5116 | "NEW" omni-jig | 395 | 269 |

## —BRAND NEW—By Porter Cable

| Model | | List | Sale |
|---|---|---|---|
| 9647 | TIGER CUB recipro saw | 185 | 119 |
| 9850 | 12 volt cordless driver/drill comp w/charger-batt-case | 210 | 129 |
| 8500 | Extra 12v battery | 48 | 33 |

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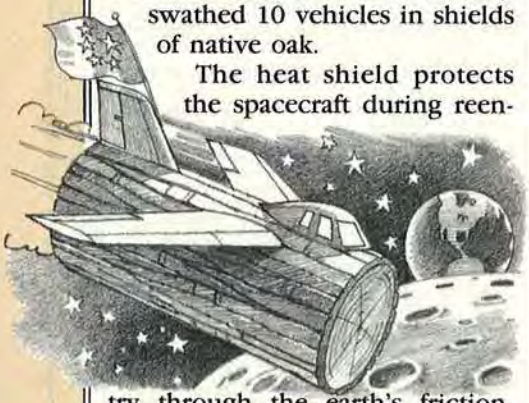
Print this article

### ONE SMALL STEP FOR LUMBER . . .

Let's see: You could use that prime oak slab for a coffee table or a carved door. Or, you could sell it to the Chinese for blasting into space as a heat shield!

While the United States took its typically high-tech approach to their spacecrafts' exterior heat shields, China took the low-tech route. It's reported that they swathed 10 vehicles in shields of native oak.



The heat shield protects the spacecraft during reentry through the earth's friction-causing atmosphere. Oak chars, but apparently insulates sufficiently to serve the purpose.

## ROUTERMANIA

Don't feel guilty about craving that second or third router. Take Bob Rosendahl as your inspiration. At last count—and the number has probably increased by now—this Canadian manufacturer of router jigs and fixtures owned 43 routers!

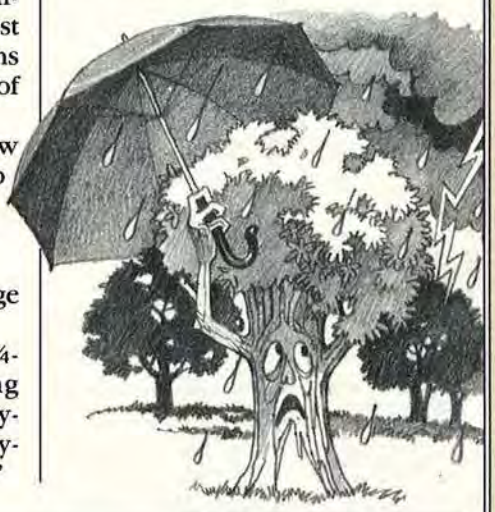
"We've got every make you can name," said Rosendahl, 56. He and his three sons operate Oak Park Enterprises, Ltd., in Winnipeg, Manitoba, and employ just three or four others. So, it seems that they always have plenty of routers to go around.

"There's always something new in routers," said Rosendahl, who goes by the name "Mr. Router" when he gives weekend seminars at woodworking shows. "Besides, we don't change bits much."

His oldest model is a 1951, ¼-hp Stanley. His favorite among newer ones—a 3-hp Hitachi. Buying advice? "I wouldn't buy anything but a plunge router now."

### THE UNLUCKIEST TREE

"Beware the oak, it draws the stroke." The lightning stroke, that is, according to English folklore. A recently published book, *The Weather Companion* (John Wiley & Sons, N.Y., 1988, $12.95, paperback), recounts old studies that found oaks were hit by lightning more often than elm, ash, pine, poplar, or beech. In fact, 60 times more often than beech.



## WORLD'S FASTEST PLYWOOD

Not enough space for a full-blown workshop and an arsenal of equipment? No whining.

Alan "Bo" Schide, a supervisor of new auto product testing at Delco, and Ron Brunner, a semi-retired auto mechanic, built a world-champion, inboard hydroplane out of wood. And, the woodworking hobbyists from Dayton, Ohio, did it in Brunner's garage with one stationary power tool—a Shopsmith Mark V.

The 1988 U.S. and world champion 5-liter boat, sponsored by Shopsmith, was constructed in 1985, has a framework of Sitka spruce, and a shell of lightweight, yet impact-resistant, aircraft plywood imported from Holland. The *Shopsmith E-31* measures 17'9"×9' and weighs 550 pounds (less its Chevrolet engine that powers it to speeds over 100 mph). "Most racing boats have bodies of fiberglass, composite materials, or aluminum," Schide says, "but, wood is easier to work, repair, and it's less expensive."

***Right.*** **Ron Brunner, on the left, and "Bo" Schide, built their all-wood hydroplane with a Shopsmith Mark V. The boat, *below*, goes 118 mph.**

Photographs: Courtesy of Shopsmith, Inc. Illustrations: Jim Stevenson

# DYANITE™ BREAKS THE PERFORMANCE BARRIER.

**New Golden Eagle™ saw blades with Dyanite™ outperform ordinary carbide-tipped blades.**

This is the revolutionary new Golden Eagle saw blade. It performs like no other blade you have ever seen.

The secret is cutting teeth made of Dyanite premium carbide, a breakthrough compound far tougher than any grade of carbide ever developed. Dyanite means incredible performance and durability.

In numerous field tests under identical cutting conditions, Dyanite premium carbide blades outperformed standard C-4 carbide-tipped blades in cutting a variety of materials…hardwood, particleboard, green lumber, plastic laminates, and more.

Dyanite carbide can be given a sharper edge than standard carbide, yet requires no special tooling to be resharpened. It's more corrosion-resistant than other grades of carbide and more resistant to high temperatures generated during cutting.

The Golden Eagle line of saw blades featuring Dyanite premium carbide teeth totals 37 blades in sizes ranging from 8″ to 16″ in diameter, in 24 to 100-tooth configurations.

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